RESOURCES-BASED STRATEGIES FOR HEALTH PROMOTION OF STUDENTS WITH DIFFERENT GENERAL CONDITIONS AND DIFFERENT ORIGINS

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Abstract
Background: The aim of this study is to investigate the study-/work-related behavior and experience patterns of students, taking into account their origins as well as the stressful general conditions. **Methods:** A total of 194 students (41.8% women, 58.2% men, 58.7% German and 41.3% international students) were evaluated to their strains during the study and study-/work-related Behavior and Experience Patterns (AVEM). Four potentially stressful conditions were taken into account. **Results:** For only 14% of international students, but 45% of German students risk patterns for work-related behavior and experience were found. Study-/work-related behaviour and expe-rience patterns depend on the origin of the students. Resources during study were significantly higher among students of German origin. **Conclusions:** A study-related strengthening of resources is necessary, which can be viewed as a competitive advantage when choosing a study location.
Keywords: *university students; origins; international students; study-/work-related Behavior and Experience Patterns; resources; prevention; health.*

Introduction

With the implementation of the Bologna Process, there were major changes in the demands and resource profiles of students throughout Europe. The European Higher Education Area (EHEA) and Bologna Process is an international collaboration on higher education of 48 countries, which adapted their higher education systems to making them more compatible and strengthening their quality assurance mechanisms. The aim is to increase staff and students' mobility and to facilitate employability. This is also in the context of increasing globalization and the growing international competition for expertise [1]. These changes also resulted in additional workloads for the students. Half of the students reported that they were regularly under stress, with multiple stressors frequently being present [2]. For 42% of the students, the strain is caused by a combination of various areas of life. 68% of them include their study. In addition, the financial situation (40%), parttime jobs (40%), leisure time (39%), partnerships (32%), as well as their own health (21%) and the household (19%) with children (13%) also have an impact on the students' reality of life [3, 4]. Mental strain factors as a potential health risk are confronted with numerous resources (organizational, social and personal) as compensation and protection components to avoid or reduce the negative consequences of stressors. Specific personal coping mechanisms across situations and, as a consequence, the management of the stress situation are the conditions for resources to develop their healthprotective effect [5].

The mental health of students

Mental disorders are prevalent among students. According to the WHO (World Health Organization), one fifth of students worldwide had a 12-month DSM-IV-based mental disorder (Diagnostic and Statistical Manual of Mental Disorders), which occurred in 83.1% of these cases before matriculation. However, only 16% of students with mental disorders received treatment [6]. Mental disorders have a negative influence on a possible

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degree and are a new focus of occupational medicine in recent years.

Resources for health promotion

The focus of the conservation of resources theory (COR) is on the resources, motivation, and stress management that apply beyond the individual to diverse people of the same background in similar cultures [7]. Defining the concept of culture enables to predict individual behavior in stressful demanding situations, since the influence of society forms the self-concepts [7]. In addition to COR, the demand-resource model based on Antonovsky's salutogenesis is usable [2]. The demands have an external effect on the individual from a professional, family or social point of view. At the same time the individual's own needs, values, norms, goals and expectations control behavior from within. These are supported by the environmental, material, occupational, social ressources. Only in combination they lead to a sustainable health of the person [8] .

In the course of coping with the demands, the social environment, an important source of support (e.g. partners, friends, parents, relatives, fellow students), is mainly used [9]. There is an increased requirement for emotional and informal support at the beginning of study[10], and in the progress of the study [11], positive communication leads to better learning outcomes. The third aspect of social support includes instrumental support, where students receive practical and financial support. The most important resources for the health of the students are their own decisions for the place of study, the potential for further qualification or development, the scope for action and the time available for their courses of study [12, 13]. In contrast the loss of these protective factors is equivalent to a loss of life. This is perceived as stress and is therefore more significant [7].

New findings show a change from intrinsic to extrinsic motives in the choice of study and point to the new weighting of subsequent fields of employment (71%) and the in-herent potential for development in the job [12]. In addition, living in proximity to the place of residence for keeping up social contacts including family, tutoring programs and the events for first-year students are of great importance. They are a support service in addition to the counselling centers for various problems (stress, university studies with children, legal advice) or the university sports programs for stress reduction (yoga, relaxation methods), they provide central points of contact for every student [14]. A special criteria that has a long-term effect on the health of the students is

their study satisfaction. Following the person-job-fit theory [15], an increasing satisfaction is assumed if the discrepancy between the actual and the target value decreases, so that a balanced fit of all areas of life is achieved.

Whether a person can perform the necessary adaptation processes during studies also depends on the personality traits [16]. For example, emotion regulation is needed in examination situations so that fears of performance evaluations are not transformed into thinking blocks. A study showed, that 61% of the students reported that they can solve their problems by their own coping strategies [17]. Particularly positive values also arise in the self-assessment of health-related behavior and the emotional self-concept as aspects of internal resources [2]. The students show a significant optimism and are ready to face the demands of the course. Because a positive correlation between mood and cognitive performance exists, aspects of intrinsic motivation can have particularly promising effects [18]. These are particularly high when students experience themselves in flow while working on a topic. Complete fusion with a task is achieved when a feedback follows on the work done. In order to provide such constructive feedback, a communicative environment in teaching is necessary. If this can be generated, the study program provides a good learning environment for the individual development of stress management and working methods that will enable a future success in the labor market [3]. It is shown that about 40% (32% women; 52% men) are physically active at least three times a week and therefore meet WHO requirements [17]. The most important stress management strategy is compensation through sports activities or a particularly healthy lifestyle [2]. 75% of students would like to follow courses on health promotion. Especially, offers for relaxation and stress management are in high demand among women [19].

A strategy to avoid the long-term consequences of mental strain can only be developed by considering risks and resources together [5]. New models and concepts that explain the relationship between stress and health have resource-oriented approaches to health promotion. These include not only inappropriate strains (stressors) but also resources. The Work-Related Behavior and Experience Patterns (AVEM, German Arbeitsbezogenes Verhaltens- und Erlebensmuster) questionnaire is one survey instrument. It records engagement with work, resilience in dealing with the everyday stresses of work, and emotions

associated with work and with life in general [20]. In addition to the various dimensions, the questionnaire includes four different types of behavioral and experiential patterns that play a significant role in coping with occupational demands [20]. Two health-promoting and 2 health-hazardous patterns can be distinguished [20].

2. Purpose, subjects and methods:

2.1. The purpose of the present study is to describe the study-related behavior and experience patterns of students at higher education institutions across different situations and to analyze the available resources, taking into account the students' origins as well as the stressful general conditions. This serves as a baseline to plan a resource-oriented approach to health promotion. In addition, individual cross-situational patterns of action and behavior are presented, because these also represent an essential resource in the stress-mental health pathway. There is a gap in research examining resources among students of different origins.

The following questions were examined: Which resources as general conditions play a role as components in the extended stress-strain concept? Are the manifestations in the various dimensions of work-related behavior and experience patterns (AVEM) of national and international students different? What significance does this result then have for the distribution of AVEM patterns in the two groups of students? This results in the following hypotheses: 1) International students have more stressful conditions because they study in a non-native country. 2) AVEM dimensions and following re-sources differ between German and international students. 3) The international students show AVEM patterns that are hazardous to their health, especially of the B pattern.

2.2. Subjects & Methods

Subjects

A total of 194 students (41.8% women (n = 81) and 58.2% men (n = 113)) from the following faculties were included in the survey: Mechanical Engineering, Humanities, Social Science & Education, Engineering & Industrial Design, Medicine, Mathematics, and Social Work, Health & Media of two universities of a large city in Central Germany, and included network of international students from different matriculates and fields of study. The subsample of students with international origin comprises 80 participants (41.2%) aged between 20 and 30 years (24.7± 2.4 years). The subjects of the total sample were on average 23.0±3.4 years old (age range 18 –

34 years), of which 50% were younger than 22 years, 25% between 22 and 25 years and 25% older than 25 years. The average age of German students was 21.7±3.5 years. The home countries of students of international origin are widely represented in a total of 36 countries. The gender distribution within both groups of students was not significantly different (p = 0.442): 45 women (39.5%) and 69 men (60.5%) vs. 36 women (45.0%) and 44 men (55.0%).

All students answered the following questionnaires: 1) Questionnaire on strains during the study (and at the workplace) and 2) Study-/Work-related Behavior and Experience Patterns (AVEM) [20]

Procedure

The surveys of the cross-sectional study were performed in 2010–2013 and 2018. The invitation to participate in the study was made via flyers with information and contact details. In addition the questionnaires were available in paper form to all those present at the first-semester event in the auditorium. The questionnaires were handed out to the participants in paper form and completed independently without any time limit. In the case of language barriers faced by international students, they were supported by the research team. In case of language barriers of international students an interpreter helped to understand and answer the respective questions, because all questions were in German (bias). Due to the subjective questionnaire study, no specific exclusion criteria were defined to achieve a wide range of students.

Questionnaire on strains during the study (and at the workplace)

This questionnaire collects sociodemographic data of the subjects (including age, gender) and information on the study program, the time in hours per week required for the study program, individual protective factors and potentially stressful general conditions such as household, child, care of family members, financing of the study program, possible job opportunities and travel times of the students. This questionnaire asks about burdens in connection with the financing of studies, time burdens during studies and also family burdens.

The following 4 items of the study-related stress factors were used as potentially stressful general conditions, because these factors were identified as the main stressors of the total sample:
- part-time work/working alongside studying;
- children;

• nursing of relatives, and
• travel distance with a journey of more than 120 minutes.

(characteristics 9–11). The characteristics of the individual dimensions are shown in *Table 1*. Stanine values between 4 and 6 are classified as

Table 1

Expression of the AVEM dimensions within the 4 patterns (Schaarschmidt & Fischer, 2004), own presentation

AVEM	Pattern			
Variables	G	S	A	B
Subjective importance of work in personal life	↔↑	↓	↑	↓
Work-related ambition	↑	↓	↔↑	↓
Willingness to work until exhausted	↔	↓	↑	↔
Striving for perfection	↔↑	↓	↑	↔↓
Distancing ability (ability to recuperate mentally from work)	↔↑	↑	↓	↔↓
Tendency to resignation in the face of failure	↓	↔↓	↔↑	↑
Proactive problem-solving (active and optimistic attitude)	↑	↔↓	↔↑	↓
Inner calm and balance (experience of emotional stability).	↑	↔↑	↓	↓
Experience of success at work (satisfaction)	↑	↔↓	↔↑	↓
Satisfaction with life	↑	↔↑	↔↓	↓
Experience of social support	↔↑	↔	↔↓	↔↓
Stanine values: 1–3 under average ↓, 4–6 average ↔ (tendency to 4 additionally with ↓ and tendency rather to 6 additionally with ↑), 7–9 above average ↑. Health-promoting patterns G and S. Risk patterns A and B.				

Based on the results on potentially stressful conditions, the students were divided into subgroups with and without stressful conditions:
• no stressful conditions (nSC, n=108, 55.7%) and
• with ≥1 stressful conditions (SC, n = 86, 44.3%).

These are later included as covariates in the statistical analysis.

Study-/Work-related Behavior and Experience Patterns (AVEM)

The questionnaire measures work-related behavior, attitudes and habits [20]. Sixty-six items from the domains of "work commitment", "psychological resilience" and "job-related emotions" are summarized in 11 dimensions obtained by factor analysis as follows: 1) Subjective importance of work in personal life, 2) Work-related ambition, 3) Willingness to work until exhausted, 4) Striving for perfection, 5) Distancing ability (ability to recuperate mentally from work), 6) Tendency to resignation in the face of failure, 7) Proactive problem-solving (active and optimistic attitude), 8) Inner calm and balance (experience of emotional stability), 9) Experience of success at work (satisfaction), 10) Satisfaction with life, 11) Experience of social support. These 11 AVEM characteristics can be grouped into three major areas such as engagement with work (characteristics 1–5), resilience in dealing with everyday stress at work (characteristic 5 again, 6–8) and emotions associated with work and life in general

"normal". Depending on their prominence in the particular category, they reflect the four typical work-related behavior and experience patterns (G, S, risk patterns A and B) [21]. We used only pure patterns with an expression of > 95% in one pattern, accentuated patterns with pattern expressions between > 80% and ≤ 95%, and tendential patterns (pattern expression ≥ 60 – ≤ 80%, with no other pattern with ≥ 30% expression). Pattern combinations were possible, but not considered in the present study. Cronbach's α for each AVEM characteristics range from 0.82 to 0.90.

Statistical methods

All analyses were performed in SPSS Statistics 26 for windows. It was tested for normal distribution using the Kolmogorov–Smirnov test. The Chi-square test was used to test the distribution of subgroups of different origin and subgroups with and without stressful conditions. The Fishers Exact Test was used to compare the distribution of the different frequency occurrence of different resources and the distribution of AVEM patterns in the subgroups of students of German and foreign origin. The Mann–Whitney U-test was used to assess the impact of low-value resources and the impact of the AVEM categories. In addition, the General Linear Model (GLM), test for intermediate subjects, corrected model) was applied, taking into account the general conditions. A Bonferroni test was performed. The significance level was based on a 5% significance level.

3. Results & Discussion

Results

For the presentation of the results, the following questions are examined: Which re-sources as general conditions play a role and what influence do they have? Are the manifestations in the various dimensions of AVEM of national and international students different?

General information about the students and conditions

More than half of the students have no stressful general condition, 38.7% have one, and 5.7% of the students have at least two or more general conditions (*Figure 1*). Of the 57 students

week ($\varnothing$ 19.2 ± 9.4 hours per week). Taking into account the preparation and follow-up time, this was as much as 56 hours per week ($\varnothing$ 15.6 ± 10.9 hours per week). The time invested in household activities during the semester and holidays is roughly comparable (6.1 ± 4.3 hours versus. 6.5 ± 5.0 hours). The students had an average employment of 5.6 ± 10.64 (range 0 – 80) hours per week during the semester and 12.8 ± 17.49 (range 0 – 120) hours per week during the semester break. 6 students of German origin (3.1% of the total sample) have children. All students from international countries are childless. The average percentage of financing for studies by parents
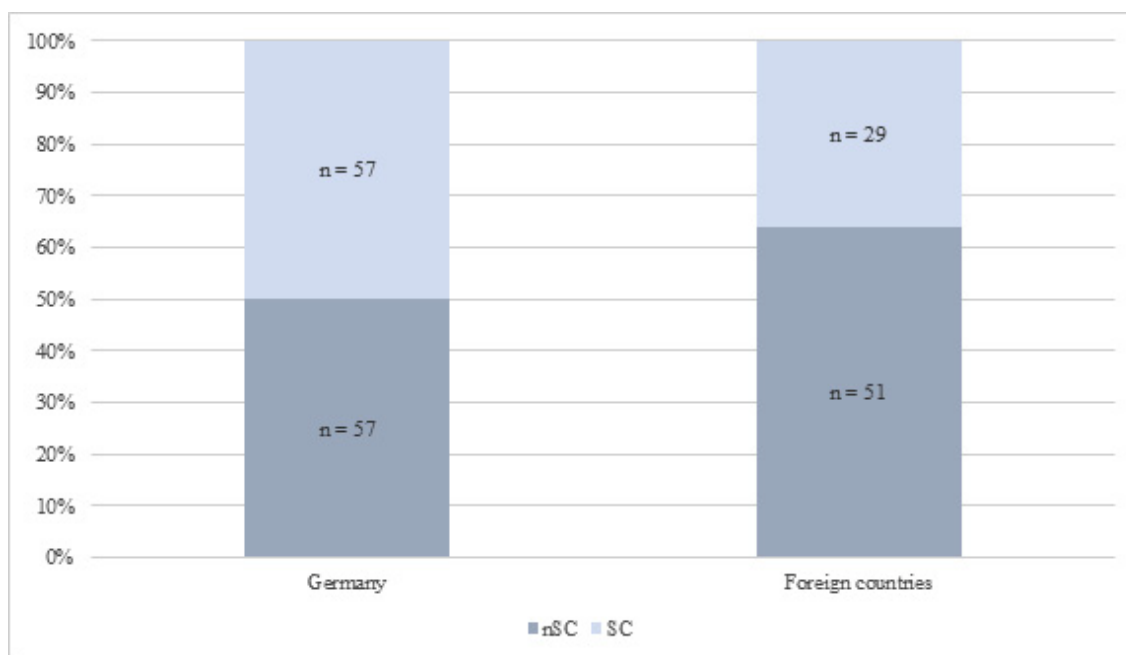

Figure 1. Allocation of subgroups with different stressful conditions among groups of students of different origins (p = 0.058)

of German origin with stressful conditions, 46 had only one, 10 had two and 1 had three or more stressful general conditions. Of 29 students from international countries with stressful conditions, all of them stated that they only had one potentially stressful condition. The allocation of the origin of the respondents with and without stressful conditions in the student groups did not differ significantly (p = 0.058). The age of respondents in these two subgroups with different conditions was also similar (22.5 ± 3.1 years for participants in group nSC, 23.5 ± 3.7 years for those in group SC).

The average distance to the university is between 8.2 ± 15.67 km (range 0.5 and 120 km) and the drive takes between 3 and 120 minutes. The time required for studying (lectures, seminars and practical training) was up to 45 hours per

was 57.9 ± 40.2% in the overall sample (German versus foreign origins 58.5%/41.5%). Other financing options were available to 13.8 ± 2.7% of the students through the BAfoG scholarship (state support for the training of pupils and students in Germany), 17.4 ± 28.5% through their own income, 5.6 ± 20.0% through other scholarships and 4.4 ± 16.2% through other income. In the case of 27 German students (23.9%) and 39 international students (48.8%), 100% of the financing for their studies was provided by their parents. Only 6 students from Germany financed 100% of their study with the BAfoG scholarship, for all others the BAfoG scholarship is only a part of the financing of their studies. Another 6 students (7.5 %) financed their studies with other scholarships. 1.8% of students of German origin (n = 2) and 7.5% (n = 6) of international

students financed their studies 100% from their own income.

Resources of the students

In the survey on resources during study, it was found that the enjoyment of studying and part-time work as well as the collegial and open atmosphere in the environment was subjectively significantly higher among students of German origin (*Table 2*). They also felt more support for professional interests from their immediate circle.

stress factors were more pronounced for them and the general conditions were taken into account.

Study-/Work-related Behavior and Experience Patterns (AVEM) of the students

Table 4 shows the stanine values of the total sample for the 11 categories of the AVEM. The Work-related ambition of the total sample reached the highest score of 6.1 ± 1.6 points; with an average value of 6.4 ± 1.6 points, the students of

Table 2

Presence of different resources in the total sample and the subgroups of students

Resources	Total	Germany	International countries	p Fishers exakt test
	incidence [%]			
Enjoyment of study and work				
never	1.6	0.9	2.5	< 0.001
rarely	10.9	4.5	20.0	
sometimes	41.1	35.7	48.8	
often	46.4	58.9	28.7	
Collegial and welcoming atmosphere in the environment				
never	2.1	0	5.0	0.001
rarely	9.4	6.3	13.8	
sometimes	37.0	31.3	45.0	
often	51.6	62.5	36.3	
Support of family/partner in their professional interests				
never	4.7	3.5	6.3	0.002
rarely	9.3	6.2	13.8	
sometimes	28.5	21.2	38.8	
often	57.5	69.0	41.2	

Table 3 shows the impact of scantly available or pronounced resources. In most cases, students do not feel stressed. International students felt more stressed by a less welcoming and collegial atmosphere or a lack of support, but no significant statistical differences between German and international students were found. Students from other countries feel more stressed if these three

German origin were higher compared to norm values. The lowest values, which were also under the norm, were found in the categories of Proactive problem-solving (3.9 ± 1.7 points) and the Experience of success at work (satisfaction) (3.5 ± 2.00 points). Particularly low values were found in the group of foreign origin. In addition, the stanine values of the categories Satisfaction

Table 3

Expression of strain caused by low available resources in the total sample and in the subgroups of students

Resources	Total	Germany	International countries	p Mann-Whitney-U	GLM with general conditions as covariate		
					F	p	p Bonferroni
	AV±SD Median (min-max)						
Enjoyment of study and work	0.53 ± 0.876 0 (0 − 3)	0.41 ± 0.730 0 (0 − 3)	0.69 ± 1.001 0 (0 − 3)	0.080	2.352	0.098	0.031
Collegial and welcoming atmosphere in the environment	0.39 ± 0.770 0 (0 − 3)	0.29 ± 0.642 0 (0 − 3)	0.51 ± 0.900 0 (0 − 3)	0.081	1.908	0.151	0.055
Support of family/partner in their professional interests	0.38 ± 0.761 0 (0 − 3)	0.29 ± 0.592 0 (0 − 3)	0.53 ± 0.941 0 (0 − 3)	0.128	2.294	0.104	0.035
Note. AV= average value; SD = standard deviation; GLM = General Linear Model							

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*Expression of the AVEM categories (stanine values) in the total sample
and the subgroups of students*

AVEM category	Total	Germany	International countries	$p_{Mann-Whitney-U}$	GLM with general conditions as covariate		
	AV±SD Median (min-max)				F	p	$p_{Bonferroni}$
Subjective importance of work in personal life	4.9 ± 1.82 5 (1 − 9)	4.4 ± 1.89 4 (1 − 9)	5.6 ± 1.49 5.5 (1 − 8)	< 0.001	11.558	< 0.001	< 0.001
Work-related ambition	6.1 ± 1.65 6 (1 − 9)	6.4 ± 1.65 6 (3 − 9)	5.8 ± 1.61 6 (1 - 9)	0.019	2.793	0.064	0.019
Willingness to work until exhausted	4.6 ± 1.81 5 (1 − 9)	4.3 ± 1.87 4 (1 − 9)	5.1 ± 1.66 5 (1 − 9)	0.004	4.385	0.014	0.005
Striving for perfection	4.6 ± 1.85 4 (1 − 9)	5.0 ± 1.93 5 (1 − 9)	4.1 ± 1.63 4 (2 − 9)	0.001	5.419	0.005	0.002
Distancing ability (ability to recuperate mentally from work)	5.6 ± 1.53 5 (2 − 9)	5.9 ± 1.61 6 (3 − 9)	5.3 ± 1.34 5 (2 − 9)	0.019	3.59	0.023	0.007
Tendency to resignation in the face of failure	5.4 ± 1.68 5 (1 − 9)	5.3 ± 1.90 5 (1 − 9)	5.5 ± 1.33 6 (2 − 9)	0.777	0.265	0.768	0.679
Proactive problem-solving (active and optimistic attitude)	3.9 ± 1.72 4 (1 − 9)	4.2 ± 1.72 4 (1 − 9)	3.4 ± 1.64 3 (1 − 9)	0.003	6.881	0.001	0.011
Inner calm and balance (experience of emotional stability)	4.9 ± 1.62 5 (1 − 9)	5.1 ± 1.85 5 (1 − 9)	4.6 ± 1.22 5 (2 − 9)	0.049	2.631	0.075	0.044
Experience of success at work (satisfaction)	3.5 ± 1.99 3 (1 − 9)	3.8 ± 2.17 3 (1 − 9)	3.0 ± 1.62 3 (1 − 8)	0.015	4.962	0.008	0.015
Satisfaction with life	4.2 ± 1.78 4 (1 − 9)	4.7 ± 1.88 5 (1 − 9)	3.4 ± 1.31 3 (1 − 7)	< 0.001	17.629	< 0.001	< 0.001
Experience of social support	4.8 ± 2.14 5 (1 − 9)	5.6 ± 1.93 5 (1 − 9)	3.6 ± 1.90 3 (1 − 9)	< 0.001	25.277	< 0.001	< 0.001

Note. AV= average value; SD = standard deviation; GLM = General Linear Model

with life and Experience of social support among international students were below the normal range and differed significantly from the values of students of German origin (p < 0.001). Only in the AVEM category Tendency to resignation in the face of failure are the groups of different origin comparable. These differences in the AVEM categories among students of different origins are maintained if the general conditions are included as covariates in the statistical analysis and the Bonferroni correction. Also here, only in the category of resignation tendency, no significant differences between the groups can be demonstrated Tendency to resignation in the face of failure. Most categories of the work/study-related behavior and experience patterns depend on the origin of the person during their studies. Only the categories Subjective importance of work in personal life and Willingness to work until exhausted were less prominent among students of German origin than among their fellow students (p < 0.001 and p = 0.005). This questionnaire also shows significantly lower levels of subjectively evaluated Satisfaction with life and experience of social support among international students.

Students were classified into the four work-related behavior and experience patterns (AVEM patterns) based on the characteristics of the AVEM categories (*Figure 2*). Only students who were clearly assigned to an AVEM pattern were included; 34 of the respondents could not be classified into the 4 AVEM patterns. Among students of German origin, 45% (n = 36) exhibited risk patterns A (20%) or B (25%). The others in this subgroup were assigned to pattern G (n = 24; 30%) and pattern S (n = 20; 25%). This distribution was significantly different (p < 0.001) in the subgroups of students of German and foreign origin. Only 14% of students from international countries had risk patterns A (10.5%) or B (3.5%). A significantly larger proportion of students of foreign origin (86%) had the health-promoting patterns G (31.6%) or S (54.4%).

Further examination of these AVEM patterns shows no significant difference (p = 0.811) in the allocation of subgroups with and without
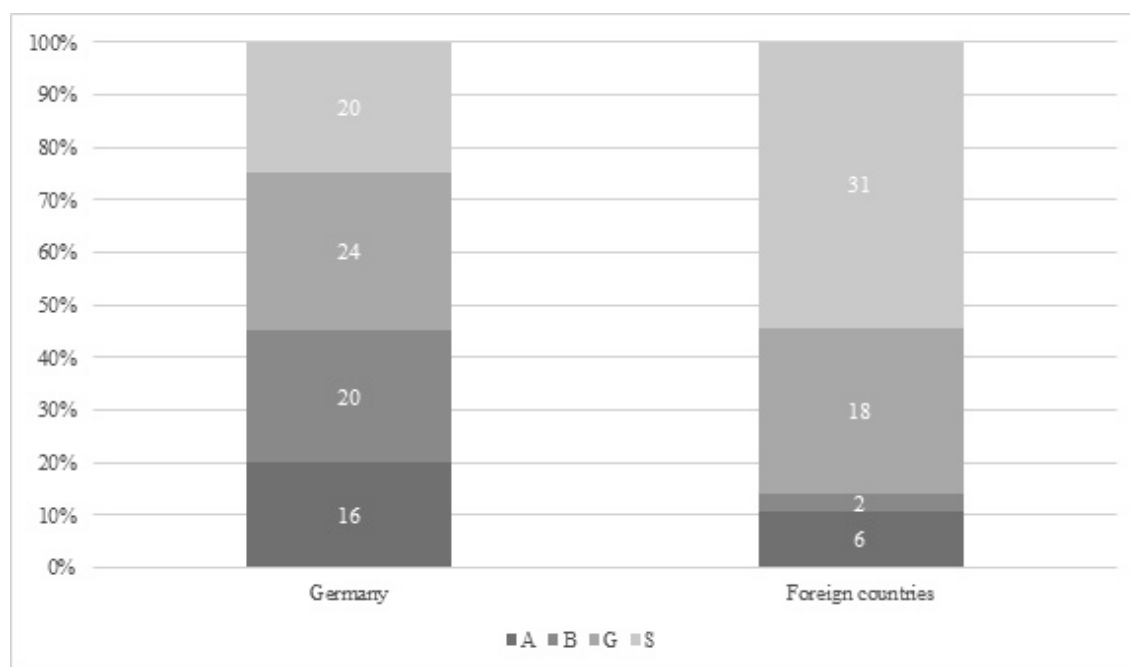
Figure 2. Allocation of subjects with different AVEM patterns in the groups of students of different origin (p < 0.001), only subjects with clearly classification to an AVEM pattern [20], n=137

potentially stressful conditions. In the group of students with pattern A and in the group with pattern G, half of the respondents stated that they had stressful conditions. The other half had no stressful conditions. In pattern B, this distribution is slightly different: 45.5% with vs. 54.5% without stressful conditions. In the case of the pattern S, 56.9 % of the test persons did not have any stressful conditions and 43.1 % indicated one or more stressful conditions.

Discussion

This study examines study-/work-related behavior and experience patterns and resources of students in comparison of German and foreign origin, taking into account potentially stressful conditions. There are significant differences between the groups. This work presents a theoretical background rather than a phenomenological description and shows that students also need help and support at the beginning of their professional careers. We assumed that studying in a foreign country produces less favorable conditions and strains. As a consequence, international students show more subjective stress and have lower resources.

There is limited data that has examined resources among students of diverse origins. Of the total sample of students, four factors were cited as the main stressors. These main stressors were working while studying, caring for children, nursing relatives and travel distance to place of work or study of more than 120 minutes and have

mainly influence on the subjective importance of work in personal life, satisfaction with life, experience of social support and proactive problem-solving. The main stressors did not differ among students of different origins.

Regarding the AVEM, in contrast to what we expected, that only 14% of international students, but 45% of German students were found to have risk patterns for work-related behavior and experience. Nevertheless, there are differences in the study-/work-related behavior and experience patterns depending on the origin of the students. Satisfaction with life and Experience of social support was significantly lower and even under the norm among international students compared to their German colleagues. In contrast, the Willingness to work until exhausted was higher among international students than among German students, which seems unfavorable. A "no failure" in front of the family seems to be a reason here or the chance to get a job in Germany. All categories, with the exception of the Tendency to resignation in the face of failure, showed significant differences, with the international group scoring less favorably. A study of teaching students also indicates a problematic stress level among students. For more than 40% of the respondents, an AVEM risk pattern (A or B) with less favorable values in General Health Questionnaire 12 has been found [22]. The re-sults show the importance of health promotion and prevention programs for students, even in a university setting.

Unfortunately, only about 50% of all German universities offer health promotion and prevention [23]. Data from the German Student Union show that the need for consultation on study-related, performance-related, financial and personal problems has risen to 61% [24]. At 13% of the consultations are on the basis of a burnout-associated depressive disorder. Primary prevention in the context of psychotherapeutic student counselling (PSB) at the university location record an increase of 261 % in the number of clients and a simultaneous decrease by 12 % in the number of courses [25]. In 2018, 410 students used the services of the PSB, which at 15.9% is the highest level since data collection[26]. The students seeking counselling are most frequently affected by the impairment of their ability to study. In particular, 57.7% are affected by learning and work problems (including performance problems, difficulties in work organization or time manage-ment) and 54.8% by examination or failure fears[26]. A self-assessment showed that 14% of the students considered them-selves to be at risk of burnout; according to the consultants' assessment, the figure was as high as 21% [26]. It is alarming that 75.5% of the students seeking counselling suffered from one or more physical or psychosomatic complaints such as headaches or backaches, gastrointestinal problems or sleep disorders [26]. Nearly half of the students showed a small increase in their health status as a result of the PSB. The students developed an understanding of their problem situation, including the realization that further treatment is necessary. The PSB has often initiated conciliation, which confirms the usefulness of such consultations [25, 26].

In addition to counselling, the implementation of a study-related stress management course appears to be useful. A survey of work-related behavior and experience pat-terns among students found AVEM risk patterns in 88.9% of students before starting a stress management course, which was implemented over 8 weeks during the semester. It could be shown that health-promoting AVEM patterns increased in the course of the treatment and remained stable for 3 months even after independent application [27]. In a survey of German teachers and in contrast to this survey, the health-promoting patterns G and S were represented in the majority. Only one third of the teachers had AVEM risk patterns A and B [28]. Compared to other disciplines, student teachers generally show a predominance of health-promoting patterns.

Student resources also showed significant differences in occurrence between the two groups of students. However, the expression of resources showed rather higher scores among German students (not significant). This demonstrates how very differently one's own resources are interpreted. Resources can positively influence resilience [29]. Resilience describes the ability to preserve or quickly recover mental health during or after stressful life circumstances. [30]. Study results suggest better resilience among German students (higher prevalence of resources, more favorable expression resilience in dealing with everyday stress at work). One study consistently demonstrated more positive academic careers, lower intent to drop out, better grades, and life satisfaction among resilient students [31]. An empirical analysis found that international students have a more prominent risk awareness, also independent of family class. The analysis shows a stronger extrinsic motivation among interna-tional students when choosing a program of study; this includes high career prestige and good opportunities for advancement [32]. These data can be related to the increased subjective importance of work in personal life and willingness to work until exhausted of AVEM our data.

In summary, study/work-related behaviour and experience patterns are dependent on students' origin, and resources during study were significantly higher among German students. The results demonstrate the need for preventive and health promotion programs for students in the university setting – such as promoting health and social skills – regardless of their background. However, typical measures in the context of occupa-tional health management (e.g. massage, health-related education and training, dis-counts in health centers) are not available to students. Significant positive correlation was shown between social support and mental health [33]. A flexibilization and free scheduling of the attended modules increases the self-efficacy expectations of the students [13, 34], which can be examples of relationship prevention. Higher educational qualifications are an important predictor of individual and societal prosperity. It is a condition for mental health and well-being [35]. We support the view that universities have both - an obligation and a strong motivation to promote student health [36]. In the process, adequate resources should be created, thus ranging from resilience develop-ment and academic support resources, to crisis intervention and timely and effective care for students with emerging mental diseases.

The course of data collection shows that the number of students of foreign origin look-ing for counseling has increased from 13.8% in 2017 to 16.6% in 2018. This increase in our clientele developed equivalently to the proportion of international students at the universities (from 15.9% in 2015 to 21.7% in 2018) [26]. It seems quite important to pay attention to the origin of the students. One study showed that with similar levels of stress during studies, an increased suicidal tendency was observed among Chinese students compared to American students [37]. This could indicate, among other things, fear of failure in the family. In addition, social counselling, law advice, office hours of the health insurance companies in the Campus Service Center of the universities, the company relay races or health days and campaigns (Heart Health Project Week 2018, Bicycle Action Day 2017, Back Check 2012) are central offers for all those involved in the university institutions. Online courses can also enhance resources. Implementing an online course on sleep disorders can increase students' sleep quality [38], which could improve mental health and performance.

As a limitation, it should be noted that the period of the survey was not recorded reliably. It cannot be surely clarified whether strains on students during their studies or the general conditions are a greater strain factor. Surveys at the end of the semester can cause higher demands than at the beginning because the general conditions have already been passed for several weeks and especially at the end of the semester there are also exams. In the case of questionnaires on paper, answers in the sense of social wishful thinking are possible. If there are language barriers for international students, uncertainties in the answers are possible despite the presence of an interpreter. Due to the small sample size of international students from various countries this study has the character of a pilot study. More data should be collected.

Conclusions

In summary, it should be commented that a study-related strengthening of resources is necessary, which can definitely be viewed as a competitive advantage to be chosen as a study location. The identified framework conditions, the origin and resources of the students play a role in study- or work-related behavior and experience patterns. This should be taken into account in health promotion programs and, most importantly, not only minimize strains but also "work out" resource-oriented strategies. Improving or-ganizational factors (e.g. information flow, exam scheduling, theoretical and practical teaching quality, time and performance pressure, social interactions and individual characteristics (e.g. self-expectation, fear of failure) has been shown to reduce stress [39]. These organizational factors could correspond to our recorded resources such as enjoyment of study and work or collegial and welcoming atmosphere in the environ-ment. A strengthening of resources could also be achieved through newer procedures such as "Telemental Health". This would reduce barriers in the search for psychosocial help and support students who are searching for advice [40].

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