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Occupational balance and associated factors among students during higher education within healthcare and social work in Sweden: a multicentre repeated cross-sectional study

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ABSTRACT

Objective The aim was to explore whether occupational balance is associated with health, health-promoting resources, healthy lifestyle and social study factors among students during higher education within healthcare and social work.

Design The study has a multicentre repeated cross-sectional design. Data were collected via a self-reported, web-based questionnaire based on the validated instruments: the 11-item Occupational Balance Questionnaire (OBQ11), the Sense of Coherence (SOC) Scale, the Salutogenic Health Indicator Scale (SHIS) and five questions from the General Nordic Questionnaire (QPS Nordic) together with questions about general health and lifestyle factors.

Setting Students at six universities in western Sweden at one of the following healthcare or social work programmes: biomedical scientists, dental hygienists, nurses, occupational therapists, physiotherapists, radiology nurses and social workers.

Participants Of 2283 students, 851 (37.3%) participated.

Results The students experienced that occupational balance increased during education. The total OBQ11 score was higher among students in semesters 4 and 6/7, compared with semester 1 students. Students with higher OBQ11 also reported higher SOC throughout their education, while health seemed to decrease. Students who reported higher levels of OBQ11 reported lower levels of health and well-being in semesters 4 and 6/7, compared with semester 1. There was an opposite pattern for students reporting lower levels of OBQ11.

Conclusions The association between higher levels of OBQ11 and lower levels of health and well-being is remarkable. There is a need for more research on this contradiction and what it means for students' health and well-being in the long run.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study explored associations between occupational balance and health, health-promoting resources, healthy lifestyle and social study factors among students during higher education within healthcare and social work from 2018 to 2021.
⇒ This study has a multi-professional focus with students from higher education in different healthcare and social work programmes at six universities in western Sweden.
⇒ Due to the repeated cross-sectional design, this study captures changes over time at the group level but does not provide data at an individual level.
⇒ Despite being a large study of higher education students, 37.3% of eligible students participated in semester 1, and response rates decreased as their education progressed.
⇒ There may be selection bias in that the survey appealed to those individuals who were already interested in the topic.

INTRODUCTION

Health and social work professionals of today must deal with a broad range of job-related issues and problems in a changing and challenging health and social work service environment, which may have negative health consequences.[1] Thus, health-promoting resources are important in higher education programmes in health and social work, to prepare students for their professional roles and future work.[1] Occupational balance, defined as "the individual's perception of having the right amount of occupations and the right variation between occupations in the person's occupational pattern"[1] (p326) has previously been positively associated with both health and well-being in general populations[1 2] as well as with organisational factors at the workplace.[1] What is not yet known is

how to support future healthcare and social work professionals' occupational balance and health.[2 3]

Occupational balance is a subjective and dynamic health-related phenomenon that varies over time[4]; that is, how people perceive occupational balance is based on their unique needs to engage in social, physical, mental and rest activities.[5] It also concerns the balance between preferred and compulsory occupations.[5] Thus, the focus is not on what people do, but on different persons' subjective experiences of their occupations.[6] Occupational balance has also been studied in relation to people's ability to control their social, emotional, mental, physical and spiritual capacities, and their external resources, such as time, energy, materials and money.[7] Previous research has focused on risk factors for occupational imbalance rather than on promoting occupational balance and health. For instance, lower occupational balance has been described as a risk factor for developing stress-related disorders.[8 9] In contrast, the current study has a salutogenic perspective focusing on aspects related to the maintenance of health and well-being, as described by Antonovsky.[10] The salutogenic perspective encompasses Sense of Coherence (SOC), which is a key concept to understand health in relation to a person's ability to assess and comprehend their situation. SOC entails three dimensions; comprehensibility, manageability and meaningfulness, as aspects relating to health.[10]

Health has been described as a positive subjective experience of oneself as a whole,[11] which is why a holistic description of health is important to consider in health-promotion research. Resources and factors that affect persons' health include emotional intelligence (EI), lifestyle habits, for example, sleep and physical activity, and social factors. Individual experiences of work, work–life balance and recovery are also essential areas for health promotion,[12] but little is known on the relationship between health-promoting resources and factors among students in higher education. In addition, there is a reported need to enhance emotional skills for a better life. Employees' EI helps them to perform well at work[13] and is important to reflect on during professional training. EI can be expressed as creating a balance between emotional and cognitive thinking.[14] EI has been shown to enhance affect and performance in stressful situations,[15] and it is a strong positive predictor of health, well-being, relationships and work performance.[16]

Sleeping well is essential for health, well-being, quality of life and cognitive and physical performance.[17] Sleeping well has been associated with less anxiety, more resilience[18] and better academic performance.[19] Sleep allows the body and brain to recover[17] and may contribute to balance in life for students during higher education.[20] A sufficient amount of sleep may also positively affect the following day and occupational balance among students during higher education.[21] Research shows that only one-third of students in higher education follow sleep recommendations,[20] and less than half of the students report good sleep quality without sleeping problems.[22] Sleeping well may be positively influenced by physical activity among students, but evidence is scarce.[23] Previous research has shown that being physically active benefits mental health and strength training can be associated with students' health and academic performance,[24] even at levels below the WHO's recommendations.[25] However, among students in higher education, only one-third[26] or a maximum of two-thirds meet these recommendations.[27]

Social study factors, such as support from study mates, can motivate students in higher education to continue their studies and be a part of the learning process,[28] and they are crucial for equity and access to higher education.[29] In higher education, social skills and social support seem to be important resources. For instance, Fjelkner-Pihl[30] shows that multiplex networks, friendships, working and learning networks (ie, group work) overlap substantially and are positively and significantly related to academic outcomes.

It is important to identify sustainable health-promoting resources and healthy lifestyle factors to support students during higher education in achieving a healthy work–life balance after graduation. Previous research has mainly focused on health risk behaviours[31] and high stress levels[32–34] among students during higher education. Therefore, this study focuses on occupational balance in relation to resources and factors that may maintain and improve progress towards health. The aim was to explore whether occupational balance is associated with health, health-promoting resources, healthy lifestyle and social study factors among students during higher education within healthcare and social work. Further to compare students with higher versus lower occupational balance, based on the hypothesis that high occupational balance correlates with the students' level of health and health-promoting resources, healthy lifestyle and social study factors.

METHODS

Design

This study has a multicentre repeated cross-sectional design,[35] including students in higher education at six universities in western Sweden, and it is part of the research project "Health-promoting factors in higher education for sustainable working life."[36] To strengthen the trustworthiness of the study, Strengthening the Reporting of Observational Studies in Epidemiology guidelines have been followed.[37]

Sample and setting

A total of 12 researchers, 2 at each university, were responsible for the study process and data collection. Of 2283 students, 851 (37.3%) completed survey at baseline. Potential participants were invited during semester 1 (the spring or fall of 2018), semester 4 (2019/2020) and semester 6/7 (2020/2021) from all students at one of the following healthcare or social work programmes: biomedical scientists, dental hygienists, nurses, occupational

therapists, physiotherapists, radiology nurses and social workers. All students in the programme groups were invited, the goal was to describe and compare the groups, not follow each participant longitudinally. The exclusion criterion was not being able to speak or read Swedish, no participants were excluded because of language.

Data collection

Data were collected via a self-reported, web-based questionnaire (esMaker NX3 software) sent to the students three times; that is, in the middle of semesters 1, 4 and 6/7. The questionnaire included questions related to students' characteristics (age and sex), occupational balance, health and health-promoting resources, healthy lifestyle factors and social study factors.[36]

Measurements

Occupational balance was measured using the Occupational Balance Questionnaire (OBQ) (11 items).[38] Scores were given on a 4-point ordinal scale ranging from 0=completely disagree to 3=completely agree. The higher the score, the higher the experienced occupational balance. The OBQ was developed in Sweden, and the internal consistency of the scale is good, with sufficient test–retest reliability.[6]

General health and well-being were each measured with a single question. For measuring salutogenic health, the validated Salutogenic Health Indicator Scale (SHIS) (12-item) was used, except for one question about 'having energy', this item was not included in the questionnaire by mistake. The SHIS is based on salutogenic theory and includes questions on perceived cognitive, physical and psychosomatic health over the past 4 weeks.[39] Scores are given on a 6-point ordinal scale, ranging from 1=negative to 6=positive, and the higher the score, the better the experienced health. The SHIS's validity has been shown to be high.[39]

The SOC (13-item)[10] was included to measure health-promoting resources. SOC includes the three components; comprehensibility, manageability and meaningfulness, and the scores are given on a 7-point semantic scale, and a higher score indicates a stronger SOC.

The Trait Emotional Intelligence Questionnaires—Short Form (TEIQue-SF) (30-items)[40] was used to measure EI.[41] Scores are reported on a 7-point scale ranging from 1=completely disagree to 7=completely agree, and the higher the score, the better the experienced EI. The psychometric properties of TEIQue-SF have been found to be good.[42]

Healthy lifestyle factors were measured with eight questions from the Swedish Public Health Survey,[43] including physical exercise, everyday physical activities, sedentariness, sleeping well, daily intake of vegetables, consumption of alcohol, smoking and snuff use.

Social study factors were measured with five questions from the General Nordic Questionnaire (QPS Nordic),[44] which measures social interaction/teamwork. Two questions were measured on a 4-point scale ranging from 1=never to 4=often, and three questions were measured on a 5-point scale ranging from 1=very little to 5=very much. The questions were modified to adapt to a student perspective; for example, 'studymates' and 'studies' substituted words such as 'coworker' and 'work'.

Data analysis

The OBQ11 was dichotomised into higher and lower occupational balance using the 75% percentile in OBQ11 median score as a cut-off. The question about general health and perceived well-being was dichotomised as 1=excellent/very good/good or 0=less good/bad. Healthy lifestyle factors were dichotomised as physical exercise 1=yes >60–90 min/week and 0=no; everyday physical activity >150 min/week 1=yes and 0=no; sedentary >10 hours 1=no and 0=yes; slept well 1=no and 0=yes; daily intake of vegetables 1=yes or 0=no; consumption of alcohol <once per month 1=no and 0=yes; smoking seldom 1=no and 0=yes; and daily snuff seldom 1=no or 0=yes. For questions about social study factors, two questions with a 4-point scale were dichotomised as 1=very often/always and 0=very seldom/seldom, and three questions with a 5-point scale as 1=a lot/much/very much and 0=very little/little.

Student's independent sample t-test or Mann-Whitney U-test was used to compare students with higher versus lower occupational balance in relation to age; total SHIS score; total SOC score; and the three components: comprehensibility, manageability and meaningfulness; and total score in TEIQue-SF and the four components: emotionality, self-control, well-being and sociability. The Mann-Whitney U-test was used if the distribution was not normal according to the Shapiro-Wilk test.

Furthermore, the χ^2 test was used to compare students with higher versus lower occupational balance, in regard to health and health-promoting resources, lifestyle factors and social study factors. Separate analyses were performed for students from the first, fourth and last semesters. A p value <0.05 was considered significant. All data were analysed using IBM SPSS Statistics V.27.

Patient and public involvement

No participants were involved in the study design; however, participants were included in discussions to understand the questionnaire and also tested answering the questionnaire digitally. Subsequently, the participants were not included in the data analysis or interpretation of the results.

Ethics approval and consent to participate

This study followed the ethical recommendations outlined in the Declaration of Helsinki, ensuring aspects such as voluntary participation, informed consent, protection of participants' well-being and confidentiality of data.[45] Ethical approval was obtained from the Linköping Regional Research Ethics Committee (Dnr 2017/211-31), and personal data were processed in accordance with the EU General Data Protection Regulation

(GDPR2016/679). All participants were informed about the purpose of the study; the voluntary nature of participation; the option to withdraw at any time; and, that all data would be handled confidentially. By responding to and submitting the survey, participants gave their consent to participate in the study.

RESULTS

A total of 851 (742 women and 106 men) students were included in semester 1 and followed up in semester 4 (n=498, 438 women and 55 men) and semester 6/7 (n=343, 312 women and 30 men). The respondents in semester 1 had a mean age of 26 (range 19–59), in semester 4, a mean age of 29 (range 21–60) and in semester 6/7, a mean age of 30 (range 22–61) (online supplemental table 1).

Results of the analysis are presented with the heading **Occupational balance** and the subheadings *Health and health-promoting resources, Healthy lifestyle factors* and *Social study factors.*

Occupational balance

The total OBQ11 score increased from semester 1 to semesters 4 and 6/7, with a slight decrease from semester 4 to semester 6/7 (online supplemental table 1). Students reporting higher OBQ11 were younger than those with lower OBQ11 in semester 4 (p=0.001) and semester 6/7 (p=0.006). There were no significant differences in reported levels of OBQ11 in relation to age and sex in semesters 1, 4 or 6/7 (online supplemental tables 1 and 2).

Health and health-promoting resources

There were differences between students reporting higher and lower OBQ11 levels with regard to general good health (p<0.001) in semesters 4 and 6/7. Students who reported higher levels of OBQ11 reported lower levels of health and well-being in semesters 4 and 6/7, compared with semester 1. There was an opposite pattern for students reporting lower levels of OBQ11. Students with higher OBQ11 had higher SOC scores than students with lower OBQ11 (including the three components; comprehensibility, manageability and meaningfulness) in all semesters. Students with higher OBQ11 also reported higher SHIS scores than students with lower OBQ11 in semester 1. Students with higher OBQ11 also reported higher TEIQue-SF (including the four components: emotionality, self-control, well-being and sociability) in semesters 1 and 4, compared with students with lower OBQ11. In semester 6/7, these differences were only significant in TEIQue total and the subscales for self-control and well-being (online supplemental table 2).

Healthy lifestyle factors

Students with higher OBQ11 reported more frequently that they slept well, compared with students with low OBQ11 in semester 1 (online supplemental table 2). During higher education, the number of students who sleep well decreased from semester 1 to semester 6/7 (online supplemental table 1). In semesters 4 and 6/7, the sample sizes were too small for statistical analyses on sleeping well. In semesters 1 and 4, students reporting higher OBQ11 performed physical exercise to a larger extent than students reporting lower OBQ11. There were no differences among the students regarding everyday physical activity, sedentariness, smoking or using snuff (online supplemental table 2).

Social study factors

Compared with students reporting lower OBQ11, students with higher OBQ11 answered support from studymates to a larger extent and that studymates listened when they were in need. Students reported to a larger extent that they could talk to friends concerning questions related to studies, maintain good relationships with studymates and appreciate study teamwork, compared with students with lower OBQ11 (online supplemental table 2). Overall, social study factors decreased from semester 1 to semester 4 and thereafter increased in semester 6/7 (online supplemental table 1).

DISCUSSION

This study explored associations between occupational balance and health, health-promoting resources, healthy lifestyle and social study factors among students during higher education within healthcare and social work. When comparing students with higher and lower occupational balances, some differences were identified mainly in semesters 4 and 6/7: students with higher OBQ11 reported higher SOC, and lower health during their education. A reflection is that this is a worrying and surprising finding, contradictory to previous research,[46] and the theoretical foundation for OBQ11 that shows positive correlations between occupational balance and health.[5 47] The findings also mean that the hypothesis that higher occupational balance correlates with the students' level of health and health-promoting resources, healthy lifestyle and social study factors was rejected. A possible explanation can be decreasing response rates, or that factors of importance for occupational balance are not captured with the questionnaire in the current study. For instance, it is common for students to work alongside their academic studies, which may affect their occupational balance.[21] Another explanation for the contradictory findings can be the implications of the COVID-19 pandemic on students in higher education. As described by Lexén *et al*,[48] the shift from campus-based education to online distance learning limited students' psychosocial and physical environments, leading to insufficient social interaction with teachers and studymates. This is important, put in relation to other studies on health promotion, which indicate that enhancing relationships may be a way to support psychosocial needs for confirmation and belonging.[12 49] Lexén *et al*[48] also describe

an increase in the individual responsibility for occupational balance in higher education during the COVID-19 pandemic, which may explain the decrease in OBQ11 levels in the sample in this study. Students with higher occupational balance may also have high demands on their own performance, their study situation and those around them.[48] Continuing studies are required to deepen the understanding of factors that affect students' experiences of the demands of the study situation and balance in relation to the rest of one's life situation. In addition, health-promoting resources should be strengthened during education so that higher education within healthcare and social work can be well-equipped to support a sustainable working life.

Students with higher OBQ11 levels report higher TEIQue-SF, including the four components in semesters 1 and 4, but only higher in the subscales of self-control and well-being in semester 6/7. By developing their EI skills, healthcare professionals can provide better patient care while taking care of their emotional well-being. Chew *et al*[50] provided evidence that EI training in the curriculum could improve students' EI and positively affect their academic performance. Students with higher EI were enabled to have more adaptive lifestyles and better understand their own and other persons' emotions.[51] Thus, healthcare professionals need to develop their EI skills during training in higher education.[52]

In the result, students, in general, report a decrease in good sleep during their education, which can be explained by increased stress during education. Previous research shows that stress affects sleep,[51] and a national survey in Norway showed that sleep problems among students in higher education have increased from 23% in 2010 to 31% in 2018.[53] Only 40%–50% report good sleep quality.[22] However, it should be noted that research shows that almost half of students who report good sleep quality are classified as having poor sleep quality according to validated measurement instruments.[22] The reduced percentage of students without sleeping problems[53] may affect academic success in higher education since sleeping problems are associated with poorer academic performance,[18 54] and women are more severely affected than men.[55] Balancing time commitments between academic studies and social life can be difficult for students in higher education and may contribute to the lack of adequate sleep duration, especially for first-year students who are adjusting to the university environment.[21] This calls for sleep interventions among students to improve their health outcomes and overall academic performance.[55]

The present study shows that students with higher OBQ11 levels performed physical exercise to a larger extent than students with lower OBQ11 in semesters 1 and 4. However, there is no difference in physical exercise during semester 6/7, nor are there any differences in the other healthy lifestyle factors between the groups with higher and lower OBQ11. An explanation can be that higher levels of coping beliefs among students in higher education are associated with increased exercise, which means that students use exercise to cope with stressful days and gain balance in life.[56] Research shows that the largest motivator for exercise among students in higher education is to achieve positive health,[57] and associations are found between high-intensity exercise and better sleep quality.[23] Research proposes targeted interventions promoting exercise as a coping method for enhancing physical activity among college students.[56 57] Developing comprehensive preventive programmes in university settings can help address diverse risk behaviours among students.

Students with higher OBQ11 in this study report more social support from studymates compared with students with lower OBQ11 and report decreased relationships and collaboration with studymates from semesters 1 to 4, even if there is an increase in semester 6/7. Other research describes that students with many relationships have more ways to get information and opportunities to create friendships that support their studies.[58] It has also been described that study-related networks support students in remaining engaged in their studies,[30] and that the level of self-regulation of learning and support from studymates is linked to study-related exhaustion among first-year students.[59] This, in combination with the findings in the current study, indicates a need to support students in maintaining social relationships during higher education.

A strength of this study is the focus on occupational balance related to resources and factors that maintain and improve progress towards a healthy lifestyle and social study factors. The multicentre repeated cross-sectional design allows us to follow groups of students over time, using several validated instruments. Another strength is the multiprofessional focus with students from different healthcare and social work programmes at six universities in western Sweden. This is a large study of higher educational students, 37.3% of eligible students participate in their first semester, and in semesters 4 and 6/7 less of the eligible students in programme groups choose to participate, an important limitation is the decreasing response rates during education, which had implications for the statistical analyses. The cross-sectional analyses do not allow us to claim causality. Further, we have dichotomised some of the included questions leading to a risk of underestimating the extent of variation. Furthermore, there may be selection bias, in that the survey appealed to those already interested in the topic. Nevertheless, associations between occupational balance and health-promoting factors should be considered in higher education of future healthcare and social work professionals, regardless of the direction of causality. Future research on this topic would, therefore, be relevant. For instance, there is a need for more research on how to understand the contradictory findings in this study, and what they mean for students' health and well-being. Verde and Valero[60] describe that teaching methods need to be modified to support students' learning. We therefore

suggest additional research on occupational balance and health-promoting factors among students in higher education, to be able to draw conclusions on how to support students in maintaining occupational balance and health during higher education and beyond. Moreover, data based on a self-reported questionnaire can be considered a limitation since they rely on the ability of each person to understand and report their experiences and implicate a risk of response bias.[61] Still, measuring subjective phenomena such as occupational balance and health requires self-reported data, which is why they were used in this study. Data collection was conducted in the middle of each semester to avoid peak academic workloads among students and capture the most typical study situation possible.

Conclusion

The main findings were that students' reported experience of occupational balance decreases during higher education and that there was an association between higher occupational balance and lower levels of health and well-being. This is a surprising finding in relation to previous research, and there is a need for teachers to actively work with students' occupational balance and health during higher education and beyond. For instance, the findings suggest a deeper exploration of the number of activities that higher education entails, as this seems to be related to students' ability to control their own capacities, such as emotional skills, healthy lifestyle and social factors, as well as external resources. Future teaching in higher education needs to attend to these factors to support students' occupational balance, health and well-being.

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Contributors All authors, ML, IA, IL, QL, IAH, AJS, SP, AE, EF, LH, HN, AS and JH, made substantial contributions to the study design by identifying the research questions and participants as well as planning data collection and acquisition of data together. IA was responsible for data collection. Data analysis was performed by IA and JH and interpreted by JH, IA, IL, QL, IAH and ML. The manuscript was drafted by ML, IA, IL, QL, IAH and JH, while all authors, ML, IA, IL, QL, IAH, AJS, SP, AE, EF, LH, HN, AS and JH, provided critical revision of the paper in terms of important intellectual content. All authors have read and approved the final submitted version and are accountable for all aspects of the work. ML, guarantor.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the Linköping Regional Research Ethics Committee (Dnr 2017/211-31). All participants were informed of the purpose of the study; that participation is voluntary; that they can leave the study at any time; and, that all data are handled confidentially. By responding to and submitting the survey, participants gave their consent to participate in the study.

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