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Dual Careers for Mental Health (DC4MH)

NATIONAL REPORT WP1

Mental health in Swedish student-athletes, non-student athletes, and non-athlete students

Natalia Stambulova¹, Andreas Ivarsson¹, Göran Kentta², Kent Lindahl², & Peter Mattsson²

1 Halmstad University, Sweden

2 Swedish Sports Confederation, Sweden

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Key findings (short version)

- Swedish **DC sport and education sample** (N=472) is the biggest within the DC4MH study, but comparison groups (i.e. student non-athletes) are too small to make meaningful conclusions.
- Swedish DC sport and education participants revealed more favorable or comparable results on all the study constructs **compared to the European DC4MH sample**, including mental health, DC experiences, mental health literacy, resilience, mental ill-health and life satisfaction.
- Swedish **male participants compared to female participants** reported higher scores on positive and lower scores on negative DC experiences, comparable or slightly fewer mental health literacy scores with higher stigma on addressing for professional help, higher resilience and lower anxiety and depression symptoms.
- The strongest (positive) **predictors for mental health** were DC competencies and benefits, satisfaction, and mental health literacy (47% of variance explained)
- **Predictors of overall DC experiences** were mental health literacy, satisfaction, resilience, mental health (all positively) and anxiety symptoms (negatively; with 55% of variance explained).

Key findings (long version)

- Total Swedish sample is 525 participants, including: 90% (N = 472) DC sport and education; 2.5% (N = 15) DC sport and work; 6.5% (N = 34) Student-non-athletes, 1% (N =4) Non-DC athletes.

Because of small number of participants in comparison groups main analyses are done on DC sport and education sample with foci on comparison with the European DC4MH sample and gender differences.

- Dual career (sport and education) participants (N=472; M_{age} =18.5) are mainly from secondary school level (95%), 53% males and 47% females, prevalence of team sports athletes (70%), as well as national level athletes (61%) mainly from non-Olympic and summer Olympic sports (77%).
- Compared to the European DC4MH sample, Swedish participants revealed:
 - More positive tendency in terms of overall **mental health** across all domains of wellbeing, especially emotional and psychological (factor and items levels and with 64% vs. 52% of flourishing participants).
 - Comparable results on having more positive (i.e., DC competencies, benefits, and support) and less negative (challenges, barriers) **DC experiences**; Swedish student-athletes reported fewer negative experiences in terms of “missing social activities” and “feeling tension between student and athlete roles”.
 - Slightly higher mean on **mental health literacy** with “recovery”, “meaningful and enjoyable activities”, “engaging in social activities” reported as main factors contributing to mental health and helping to cope with everyday stressors; comparable results on low stigma in terms of addressing for professional help.
 - Comparable results on **resilience** with the following items over the mean score (2.75): “I am able to adapt when changes occur”, “I tend to bounce back after hardship”, “I believe I can achieve my goals”, and “I think of myself as a strong person when dealing with life’s challenges and difficulties”.
 - In terms of **mental ill-health**: Swedish participants reported “no anxiety symptoms” as well as “no or mild depression symptoms” more often, and “severe anxiety symptoms” as well as “severe depression symptoms” less often.
 - More positive **life satisfaction** scores (item level); comparable results on **perceived impact of COVID-19 pandemic** with slightly more negative impact on sport and DC.
- In terms of **gender differences** within the Swedish sample male participants compared to females reported:
 - Higher scores on total DC experiences, DC competencies and benefits and lower scores on negative DC experiences.
 - Slightly lower scores on understanding factors contributing to mental health, and higher stigma regarding professional help-seeking.
 - Higher on resilience scores, except for being able to bounce back after hardship (comparable scores).
 - Lower anxiety and depression scores.

Key findings (long version - continuation):

- **Links between the study constructs:**

- There were positive relationships between the DC variables and mental health, between resilience, mental health literacy, life satisfaction, and mental health. Negative correlations were identified for all variables in relation to mental ill-health.
- The strongest (positive) **predictors for mental health** were DC competencies and benefits, life satisfaction, and mental health literacy (47% of variance explained)
- Main **predictors of anxiety** symptoms were life satisfaction (negatively), mental health diagnosis and negative DC experiences (both positively; with 38% of variance explained).
- Main **predictors of depression** symptoms were life satisfaction and mental health literacy (both negatively) and negative DC experiences (positively; with 37% of variance explained).
- Main **predictors of overall DC experiences** were mental health literacy, life satisfaction, resilience, mental health (all positively) and anxiety symptoms (negatively; with 55% of variance explained).

Data collection in Sweden

DC4MH survey data were collected in Sweden in three phases:

1. Preparatory phase (April 15-30, 2021)
2. Main phase (May 5-June 30, 2021)
3. Follow up phase (After June 30, 2021)

During *preparatory phase*:

The research group conducted a pilot study with two DC athletes, three student-non-athletes and three athletes-non-students (both males and females). Overall, a positive feedback on the DC4Mh survey from all the three categories of Swedish participants was received. Estimated time to fill it in was around 15-16 min. Based on the participants minor critical comments, changes in the Swedish version of the DC4MH survey were made, and this revised version was used in the main data collection phase.

In parallel, the Swedish Sports Confederation (SSC) contacted 46 national elite sport schools and a number of local certified sport schools in all the regions of the country (upper secondary school level with student-athletes of 16-19 years old), including specially selected schools with largest DC environments, such as Malmö Idrottsgymnasium, Sanda Idrottscentrum, Katrinelund in Gothenburg, Virginska skolan in Örebro, Lugnetgymnasiet in Falun and Umeå Elitidrottsgymnasium. To get the data from the university level student-athletes over 20 universities certified by the SSC as national elite sport universities (RIUs) and athlete friendly universities (EVLs) were contacted and invited to take part. Further, all the National Sport Federations and Swedish Paralympic Committee were asked for support in distributing the information about the DC4MH survey and stimulating the data collection. No special incentives were provided for participating in the DC4MH survey study.

During *the main phase*:

DC coordinators from all the organizations involved received the DC4MH survey link and letters/informed consent forms for the participants and their parents (if a minor). First mails were sent on May 5, followed by two reminders with a two-week-time distance. The data collection was completed on June 30.

Majority of the responses (N = 489) were collected in May, and only a small amount of participants were added in June (N = 36). We roughly estimate response rate as 16%.

During *the follow up phase*:

All the participating organizations were thanked and later (in autumn, 2021) a summary of the DC4MH survey results was suggested (upon request).

Participants

Swedish sample general characteristics:

- 525 participants in total
- Age distribution is presented in Figure 1. As it is seen on Figure 1, 33% of the participants were below 18 years old and 67% were 18 or over. $M_{age} = 18.17$, $SD = 3.89$
- Figure 2 presents gender distribution within the Swedish sample with a bit more males (53%) than females (47%); additionally 2 participants didn't report their gender.
- Here is the distribution between four different groups of the Swedish participants:
 - 90% (N = 472) DC sport and education
 - 2.5% (N = 15) DC sport and work
 - 6.5% (N = 34) Student-non-athletes
 - 1% (N =4) Non DC athletes
- As seen above, a complete majority of the Swedish sample covers DC sport and education participants, which is 41% of, and the biggest contribution to, the European DC4MH sample. At the same time three comparison groups accounting for 10% of the sample together are small and will prevent us to make a quality analysis of similarities and differences between the groups. We recognize this as a limitation.

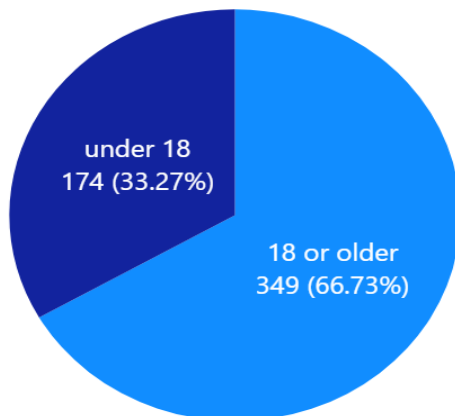


Figure 1. Age distribution within the Swedish DC4MH survey sample (N = 525).

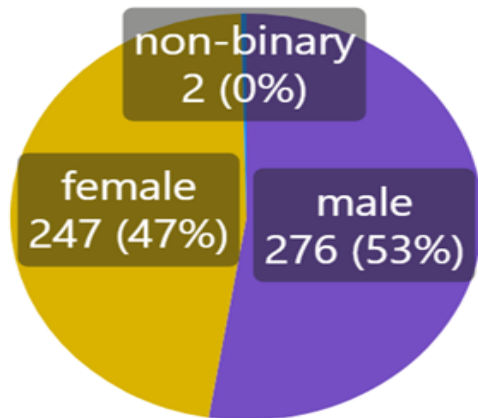


Figure 2. Gender distribution within the Swedish DC4MH survey sample (N=525).

Athletic sample characteristics:

- *Athletic sample* is characterized by Figures 3-6. As follows from the figures, the dominant categories of participants were: national and regional level athletes (83%), team sports athletes (70%), representatives of non-Olympic disciplines (39%), summer Olympic sports (38%), and winter Olympic sports (13%). We estimate the amount of Olympic/Paralympic and international level athletes as modest (17%).
- Dominant sports in the sample include floorball (n = 103), soccer (n = 46), and handball (n = 62). Among individual sports Orienteering (n = 22) and Swimming (n = 20) had the largest number of participants.
- On average, the participants reported taking part in sport activities 17 hours/week and competing for 15 days per year.
- About 75% of athletes were not injured when responded to the DC4MH survey. Percentage of injured athletes (25%) who responded we estimate as rather high, which we interpret in a way that injured athletes could have some mental health issues, and therefore were motivated to take part.

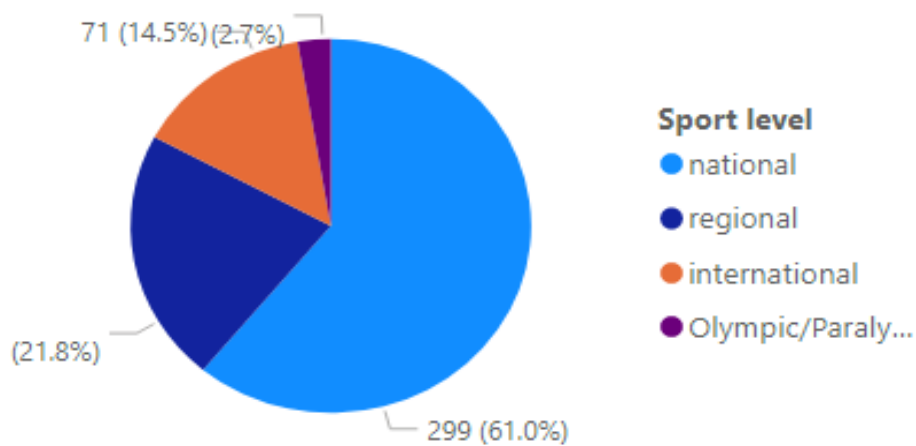
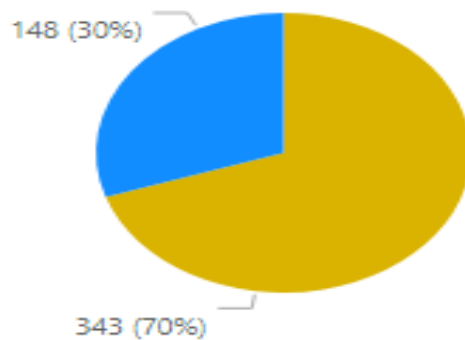


Figure 3. Description of the participants' sporting level in the Swedish sample (n = 491; 94% of full sample).



*Yellow = Team sports

Figure 4. Description of individual vs. team sports participants in the Swedish sample

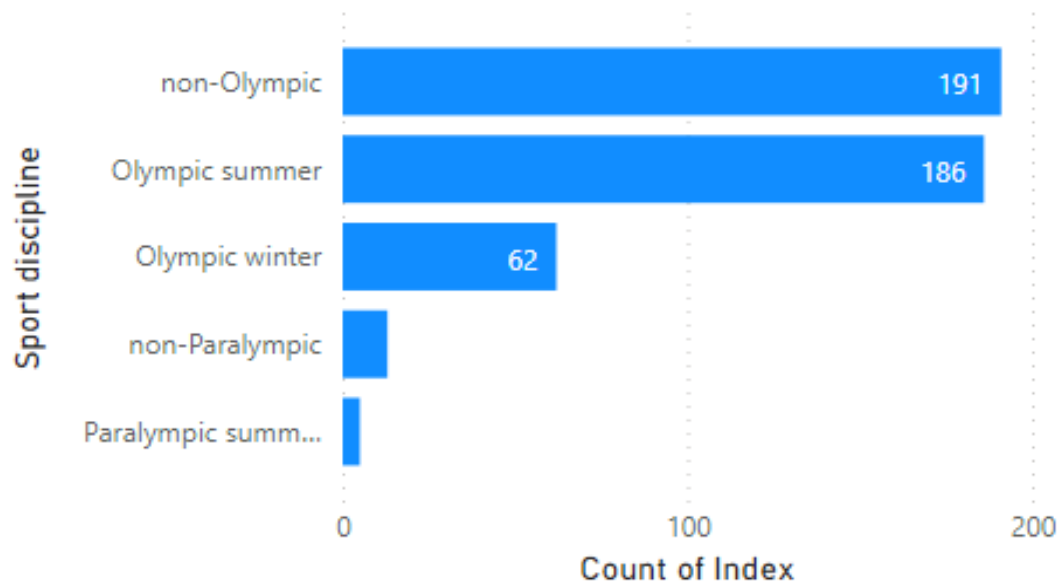


Figure 5. Distribution of participants representing various sport disciplines in the Swedish athletic sample.

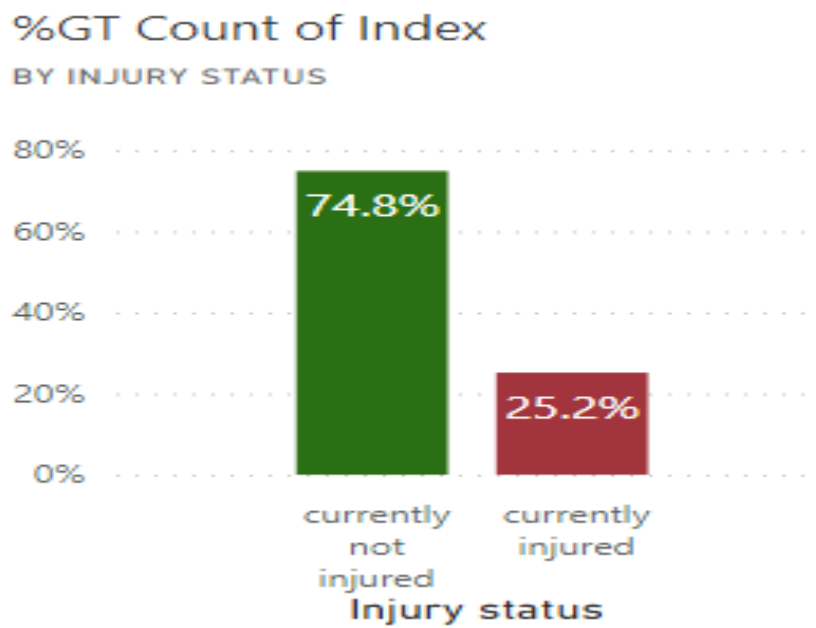
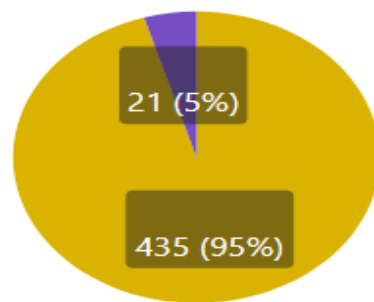


Figure 6. Injury status of the Swedish athlete participants.

Student sample characteristics:

- *Total student sample* is 506 participants disproportionately divided into student-athletes (N=472) and student-non-athletes (N=34). As mentioned above, we estimate the student-non-athlete sample as too small to provide quality comparisons and see this as a limitation.
- Some characteristics of student sample are presented on Figures 7 and 8. As seen, in spite of a good total amount of students involved, a complete majority of them represent secondary level education/ dual career (95%) and also belong to central environments (80%) certified or patronized by the SSC. In contrast, a relatively small group represents university level education/dual career (5%) and decentralized DC environments. The unfavorable distribution between secondary school and university students will not allow us to make confident comparisons between the two educational levels. As seen on Figure 8, majority of responded students were in the middle or closer to the end of their education at the respective level.



Central or Decentral DC environment

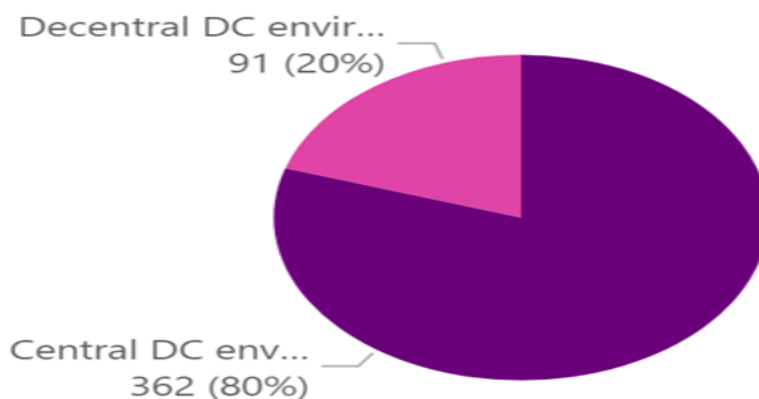


Figure 7. Secondary school vs. university level student-athletes (upper part); and Type of educational environment (bottom part).

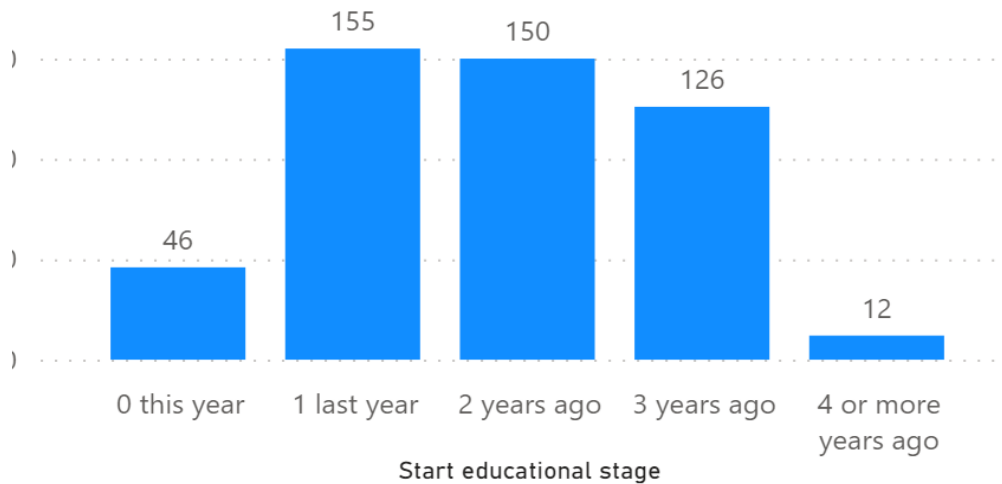


Figure 8. Start on the current educational stage in student sample

Summary of participants:

- Total Swedish sample of 525 participants is the biggest within the DC4MH project.
- A complete majority of the sample are dual career (sport and education) participants (N=472), mainly from secondary school level (95%), with comparable gender distribution (53% males and 47% females), prevalence of team sports athletes (70%), as well as national level athletes (61%) mainly from non-Olympic and summer Olympic sports (77%).
- Major limitations of the sample include: (a) too small comparison groups of student-non-athletes, athletes-non-students, and dual career (sport and work) participants; (b) small amount of participants representing dual career at the university level. Both limitations mean that all the comparisons between the sub-groups within the sample should be considered with a caution.

Mental health (MH)

The MHC-SF data of Swedish sample (N=525) are presented on Figures 9-12.

- Figure 9 demonstrates that, on average, Swedish participants during the last month before completing the DC4MH survey did feel good in terms of overall mental health, emotional, social, and psychological wellbeing no less often than 2-4 times a week. Especially, emotional and psychological wellbeing were evaluated as closer to feeling good almost every day. Meanwhile, a comparison with the European DC4MH sample (N=1785) revealed that Swedish participants showed better and more positive means in regard to all the MHC-SF factors.
- Figure 10 presents means on the MHC-SF item-by-item. The highest scores (over the mean of 3.63 across all the items, meaning feeling good closer to every day) are shown in terms of feeling happy, interested in, and satisfied with, life, belonging to the community, liking most parts of own personality, managing responsibilities in the daily life, having warm and trusting relationships, being confident in expressing ideas, and having a direction and meaning in life. The lowest scores are shown in terms of having something important to contribute to the society and feeling that their society is a good place for all people. Lower social being issues are also revealed in the European DC4MH sample, which can be explained by COVID-19 pandemic situation that restricted social contacts. But interesting that both Swedish and European participants showed higher scores (among the social wellbeing items) on belonging to closest community from which they probably get support. In total, the MHC-SF mean is higher in Swedish than in the European sample (3.63 vs. 3.20) and the same is about all the separate items, showing that Swedish participants reported higher (better) mental health and wellbeing.
- Figure 11 contains comparative analysis of the MHC-SF factors in the four sub-populations of the Swedish sample. Best scores in all the sub-populations are shown in terms of emotional wellbeing with a bit lower score in DC (sport and work) group. The lowest scores (especially in the non-DC athletes) are revealed in terms of social wellbeing. DC sport and education group showed similar overall mental health and emotional wellbeing with student-non-athletes and was better in psychological wellbeing but a bit worse in social wellbeing correspondingly. All these comparisons should be taken with caution (see limitation of the sample).
- Figure 12 shows dominance of the flourishing tendency in all the sub-populations (between 56 and 63%) except for non-DC-athletes (25%). Languishing accounts for small percentages in DC in sport and work group and in student-non-athletes. Compared to the European DC4MH sample, there is higher percentage of flourishing Swedish DC sport and education participants (64% vs. 52%).

MHC-SF Factor scores

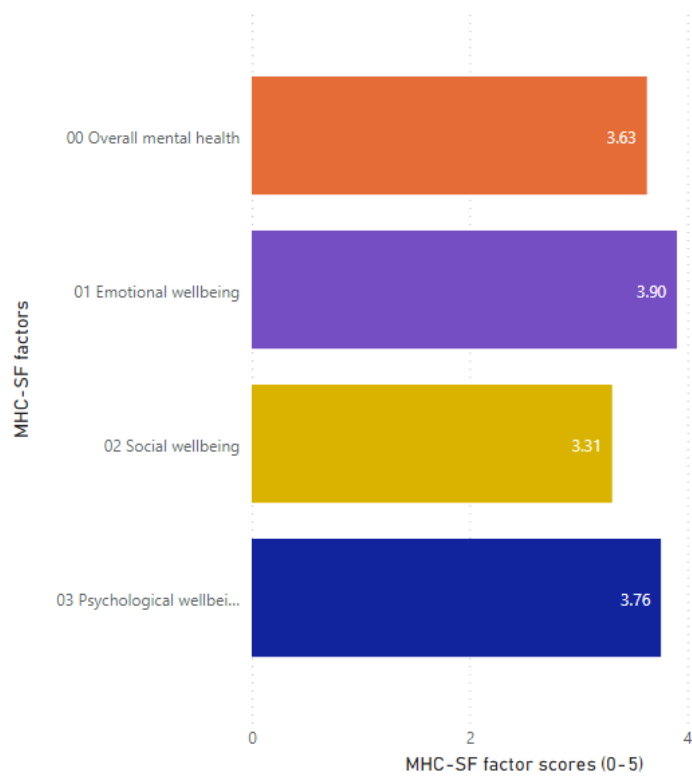


Figure 9. Mean values on the mental health factors in the Swedish sample.

Mental Health: Item scores MHC-SF

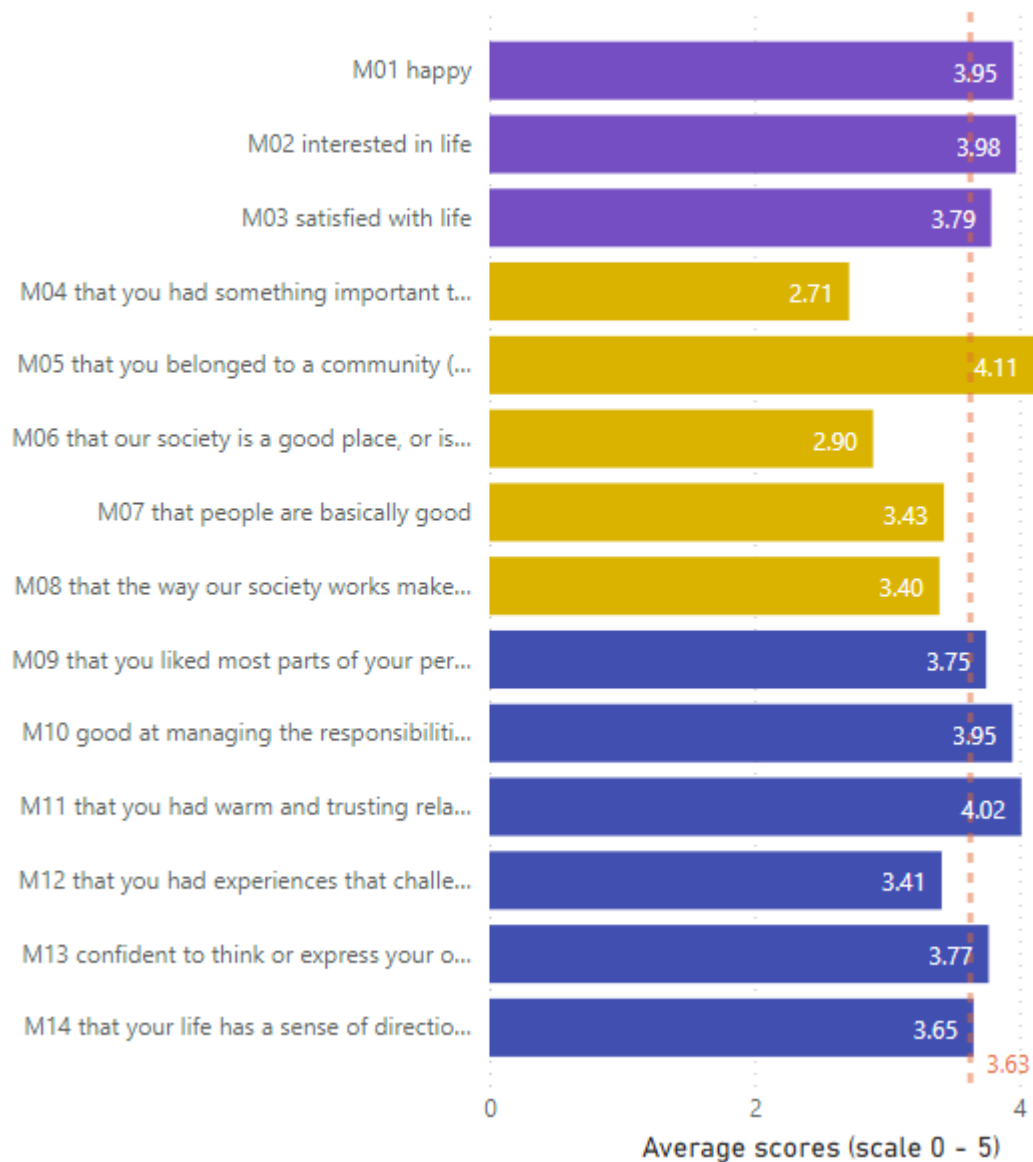


Figure 10. Mean values for each mental health item in the Swedish sample.

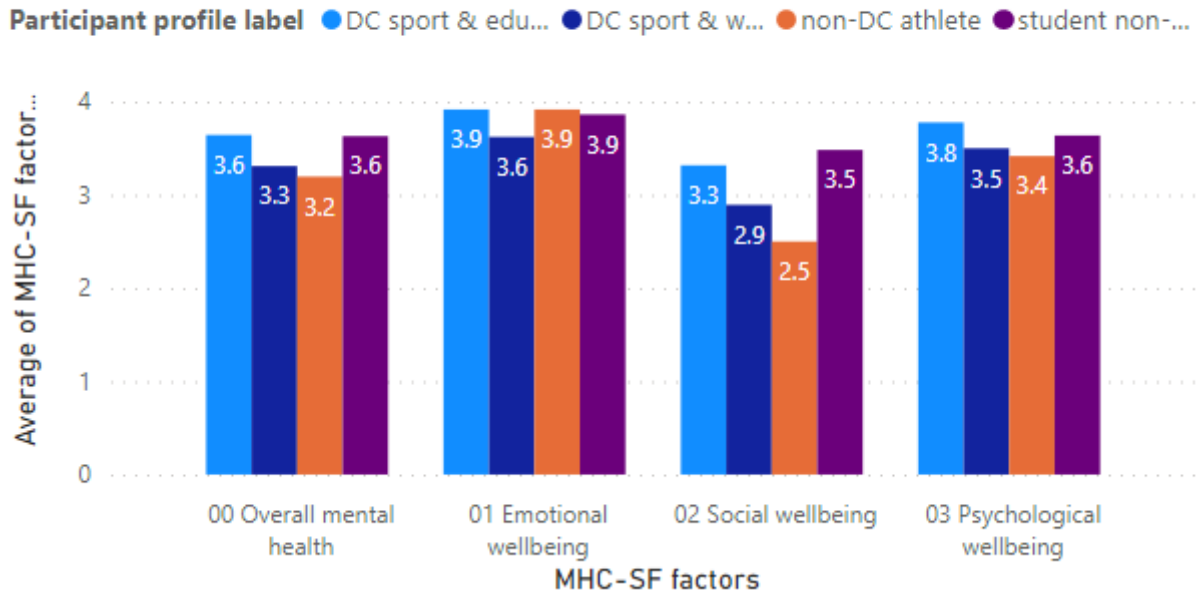


Figure 11. Comparison in mental health factors between the Swedish sub-populations.

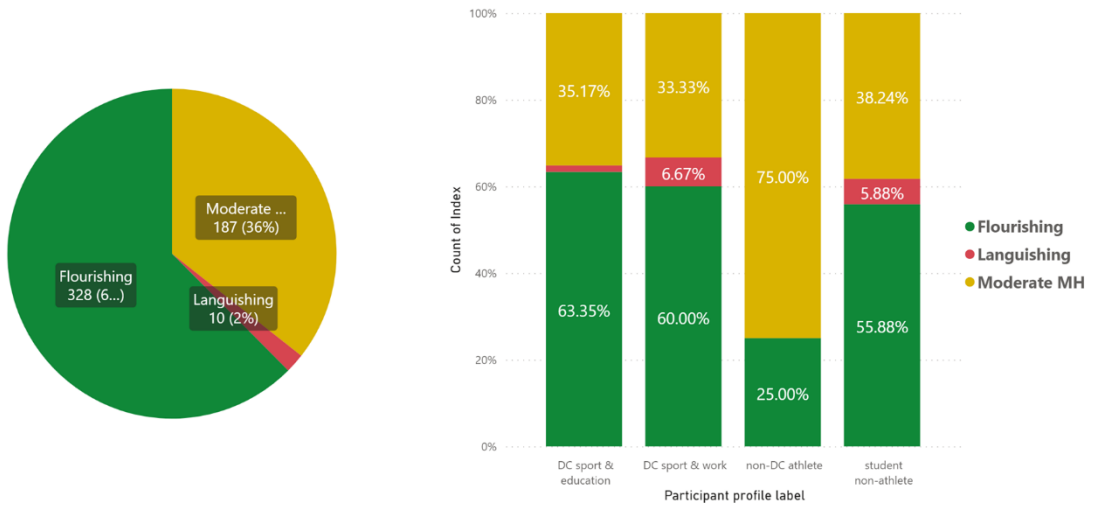


Figure 12. Distribution of the Swedish participants within the MHC-SF categories.

KEY FINDINGS

- MH of 525 Swedish participants were investigated.
- At the MHC-SF factorial level, Swedish participants revealed better scores in all the four factors compared to the European DC4MH sample.
- At the MHC-SF item level, the Swedish sample demonstrated higher total mean score compared to the European DC4MH sample (3.63 vs. 3.20) and the same is about all the separate items, showing that Swedish participants reported higher (better) mental health and wellbeing. Swedish and other European participants showed lower scores in regard to social wellbeing with exclusion of higher scores (among the social wellbeing items) on belonging to closest community from which they probably get support.
- MHC-SF categories (flourishing, moderate MH, languishing) are distributed differently between four sub-groups of the participants: flourishing tendency dominates in DC sport and education participants (63%), DC in sport and work participants (60%) and in student-non-athletes (56%) but it is much lower (25%) in athletes-non-students. Languishing accounts for small percentages in DC sport and work group and in student-non-athletes. Compared to the European DC4MH sample, there is higher percentage of flourishing Swedish DC sport and education participants (64% vs .52%). All the intergroup comparisons should be taken with caution (see limitation of the sample).
- In total, a majority of the Swedish DC4MH survey participants reported positive tendency in terms of overall mental health across all domains of wellbeing, especially emotional and psychological. Among social being items, feeling attached to the close community possibly compensated for restricted social contacts during the COVID-19 pandemic.

Dual Career Experiences (DCE)

Dual career (sport and education or work) experiences of the Swedish participants (N=472) are presented on Figures 13-16.

- Figure 13 presents means for the DCE scale item-by-item. In this 24-item scale 18 items are positively worded (DC competencies and benefits, DC support) and 6 items are about negative experiences (challenges or barriers). As expected, positive experiences have higher means (i.e., student-athletes' responses to these issues are closest to "almost always"), especially, "I feel I develop myself as a person", "I am good in managing daily routines", "I am good in maintaining social relationships", "I get support from my inner circle for DC", and "I get support from my coach for my DC". These results are well comparable with the European DC4MH sample. It is a positive trend that negatively charged items (13-18) show lowest means mainly around being experienced "sometimes". Swedish data on negative DC experiences is more favorable in terms of missing social activities and feeling tension between student and athlete roles, and similar to the European DC4MH sample in terms other negative experiences items.
- In terms of DCE factor structure (Figure 14), the Swedish sample doesn't show visible differences compared to the European sample with means around being experienced "often" in terms of overall DC experiences, DC competencies and benefits, and DC support, and means around being experienced "sometimes" in terms of negative DC experiences.
- Figure 15 reveals gender differences in DC experiences. Male student-athletes scored higher in terms of overall DC experiences, DC competencies/ benefits, and DC support, and this could be a plausible reason that they also reported lower negative DC experiences than female student-athletes. Non-binary gender group was too small (N=2) to take their results into consideration.
- Figure 16 provides comparison between the educational levels of DC athletes, and it demonstrates that secondary school student-athletes reported slightly more positive DC experiences (especially in terms of DC support) by showing higher means in all three positive experiences factors and lower mean on the negative experiences factor. Keeping in mind a small sample of university level student-athletes, these results should be taken with a caution.

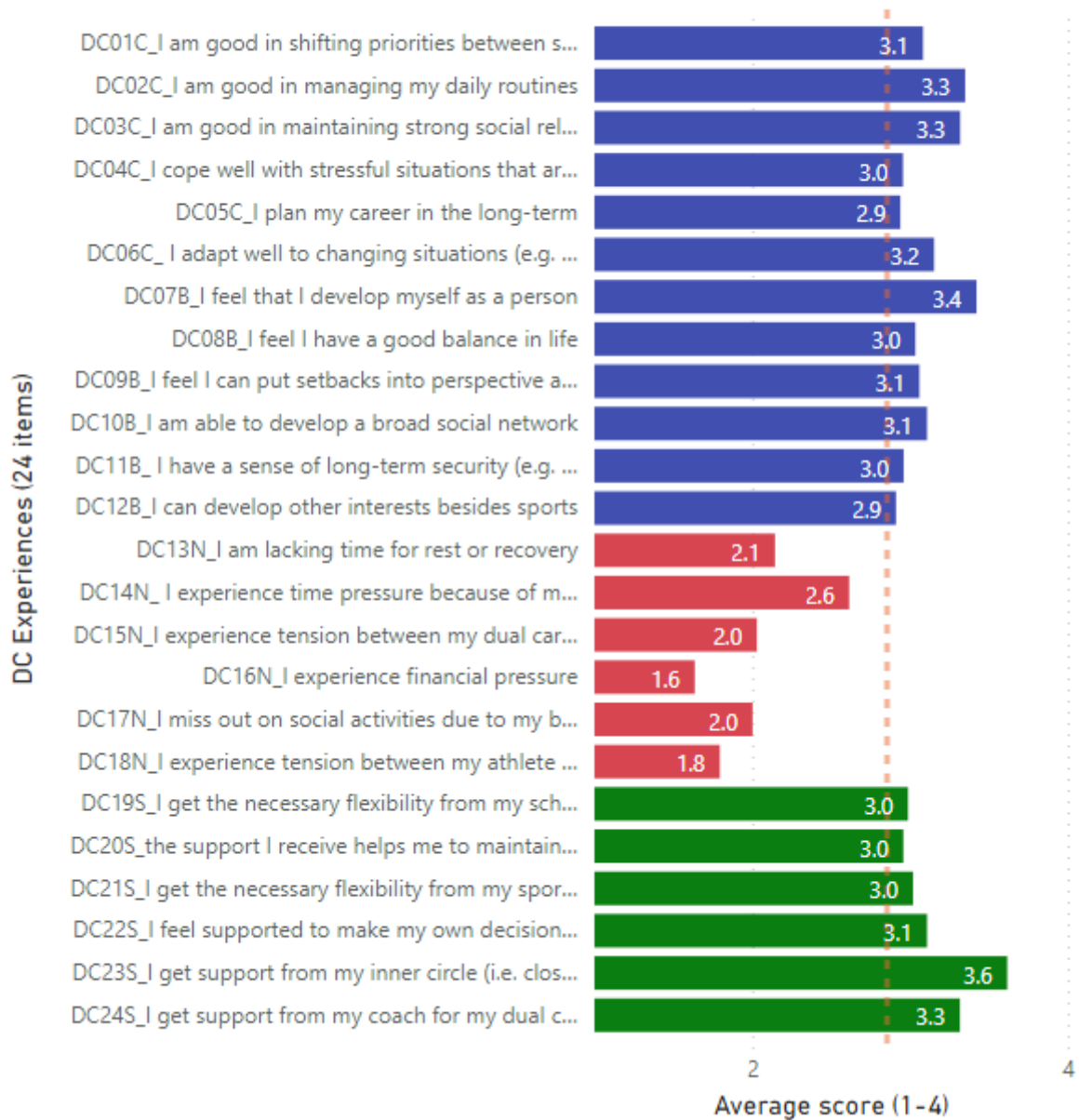


Figure 13. Swedish participants' scores on DCE items (items 13 & 18 negatively worded).

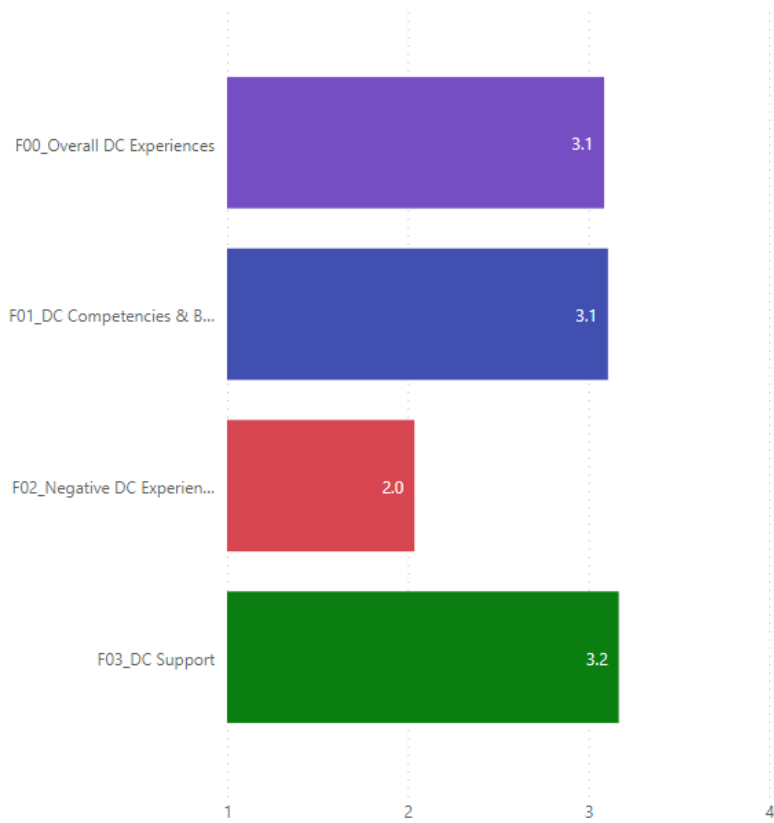


Figure 14. Mean values for the four DCE factors in the Swedish sample.

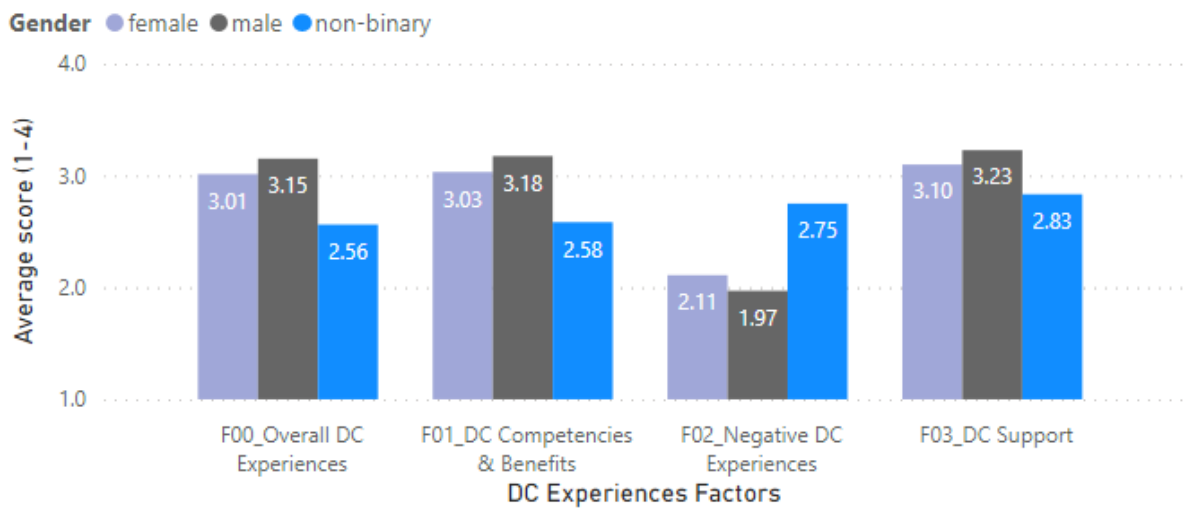


Figure 15. DCE factors scores between genders.

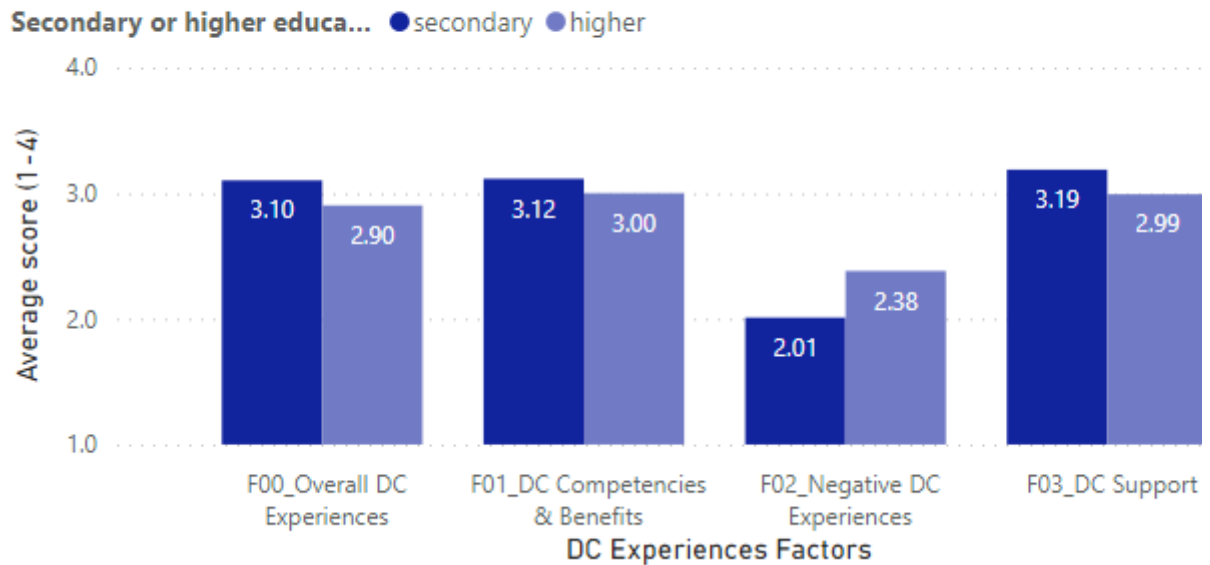


Figure 16. DCE factor scores between educational stages.

KEY FINDINGS

- DC experiences were explored in 478 Swedish DC athletes with a complete majority of them pursuing DC in sport and education (N=472), therefore mainly the latter was analyzed.
- DC sport and education participants were about 18 years old ($M_{age} = 18.51$, $SD = 3.89$), mainly from secondary school level (95%), with comparable gender distribution (53% males and 47% females).
- Swedish student- athletes reported more positive and less negative DC experiences. On the factorial level, their results are comparable to the European DC4MH sample with means around being experienced “often” in terms of overall DC experiences, DC competencies and benefits, and DC support, and means around being experienced “sometimes” in terms of negative DC experiences.
- On the DCE item level, highest scores were revealed in terms of “I feel I develop myself as a person”, “I am good in managing daily routines”, “I am good in maintaining social relationships”, “I get support from my inner circle for my DC”, and “I get support from my coach for my DC”. These results are well comparable with the European DC4MH sample. Swedish data on negative DC experiences is more favorable in terms of “missing social activities” and “feeling tension between student and athlete roles”, and similar to the European DC4MH sample in terms other negative experiences items.
- In terms of gender differences, male student-athletes scored higher in terms of overall DC experiences, DC competencies/ benefits, and DC support, and lower on negative DC experiences than female student-athletes. The same tendency was revealed in comparison between the secondary school and university levels participants with a slight advantage to the side of the former. Keeping in mind a small sample of university level student-athletes, the results on comparison between the educational levels should be taken with a caution.

Mental Health Literacy

Results on MHL12 scale are presented on Figures 17-18. Figure 17 contains data from the whole Swedish DC4MH sample (N=515), item-by-item, and Figure 18 shows gender differences in the MHL scores.

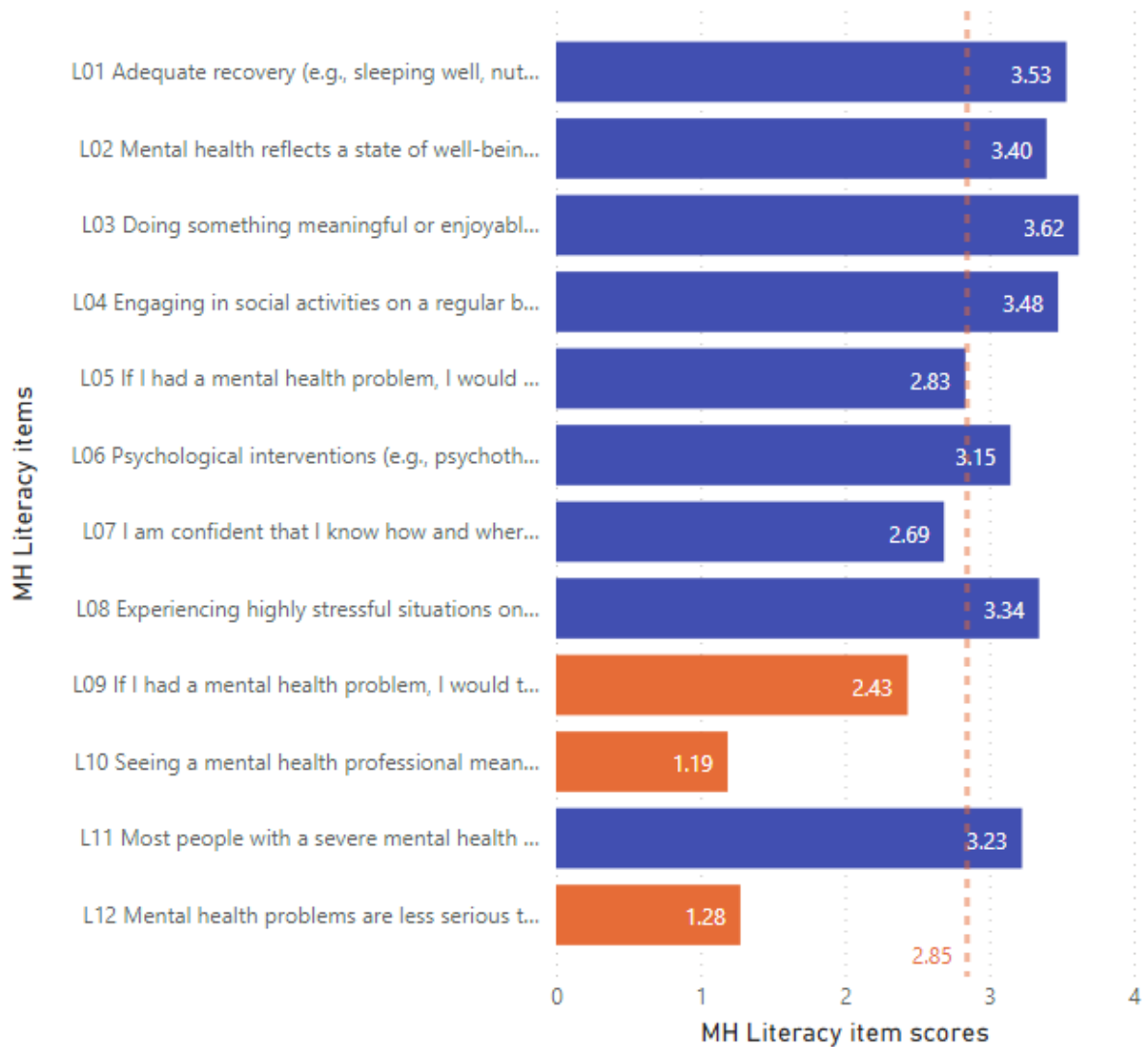


Figure 17. Scores for the mental health literacy items in Swedish DC4MH sample.

Gender ● female ● male

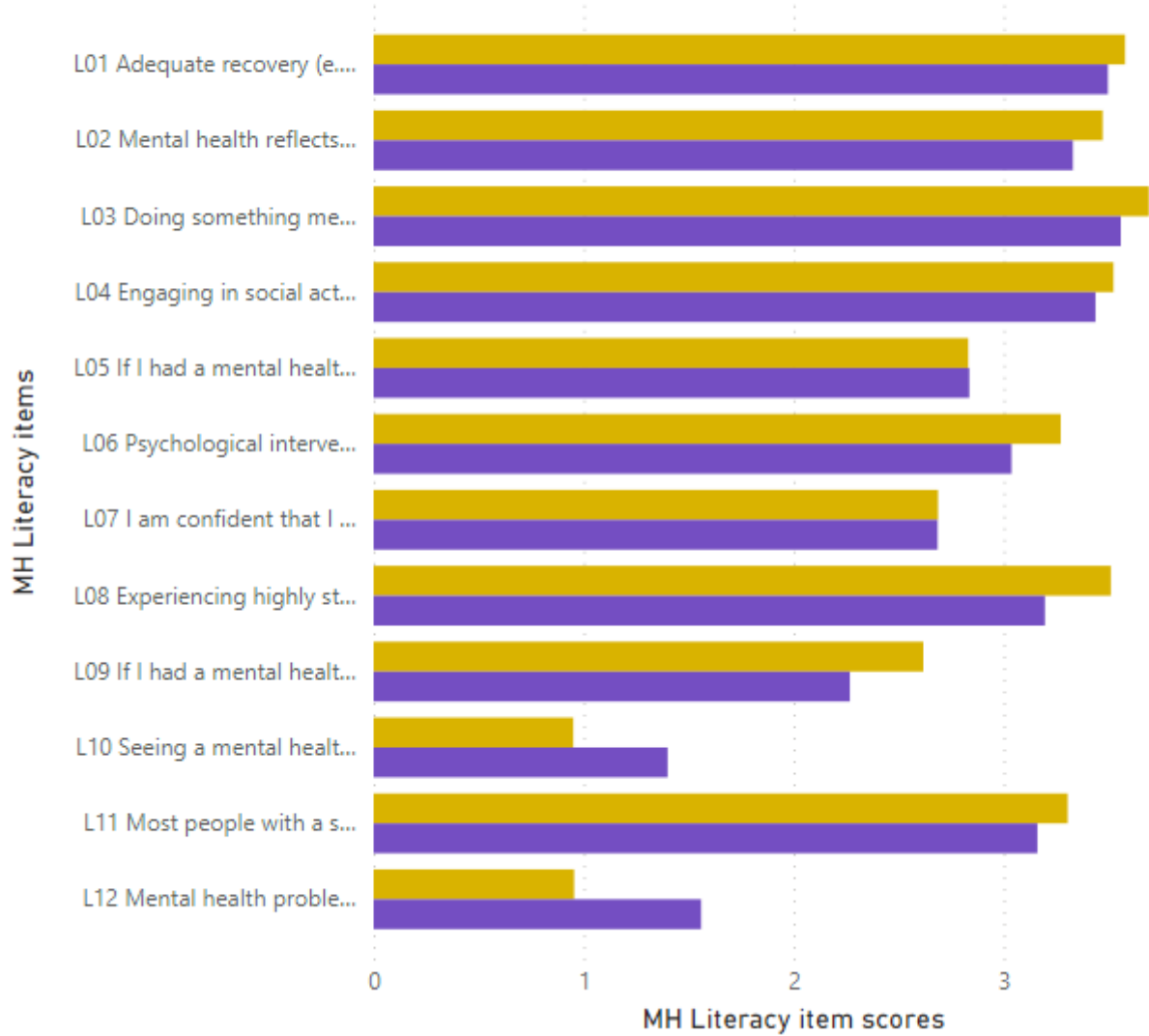


Figure 18. Comparison on mental health literacy item scores between males and females in the Swedish sample.

KEY FINDINGS

- Mental health literacy was studied in the whole Swedish sample (N=515) with 464 DC sport and education participants involved, mainly from secondary school level (95%), with comparable gender distribution (53% males and 47% females).
- Within the MHL scale (Figure 17) seven items were above the mean score of 2.85 (a bit higher than in the European DC4MH sample) showing that Swedish participants “somewhat agree” and getting closer to being “strongly agree” with major factors contributing to mental health including: recovery, meaningful and enjoyable activities, and engaging regularly into social activities. They also well understood that mental health helps to cope with normal stressors of everyday life, but if mental health is deteriorated, they would seek for professional help, believe in efficacy of treatment, and feel optimistic that most people with mental health problems can recover. Swedish participants also “somewhat disagree” that medical problems are less serious than mental and they (rather similar to the European DC4MH participants) showed low stigma in terms of getting professional treatment. At the same time, they were somewhat uncertain about their own reaction to having a mental health problem (i.e., being in between of hiding it or searching for professional help).
- Swedish female participants showed slightly higher scores on understanding factors contributing to mental health and their important role in dealing with normal stressors in life (Figure 18). Male participants were more prone to agree that mental health problems are less serious than medical (somatic) problems and they also demonstrated higher stigma regarding seeking professional help compared to female participants.

Resilience

Figures 19 and 20 present item-by-item means of resilience scores for the total sample and with gender differences correspondingly.

Resilience: CD-RISC10 avg scores (scale 0-4)



Figure 19. Scores for the resilience items in the Swedish sample (N=511).

Gender ● female ● male

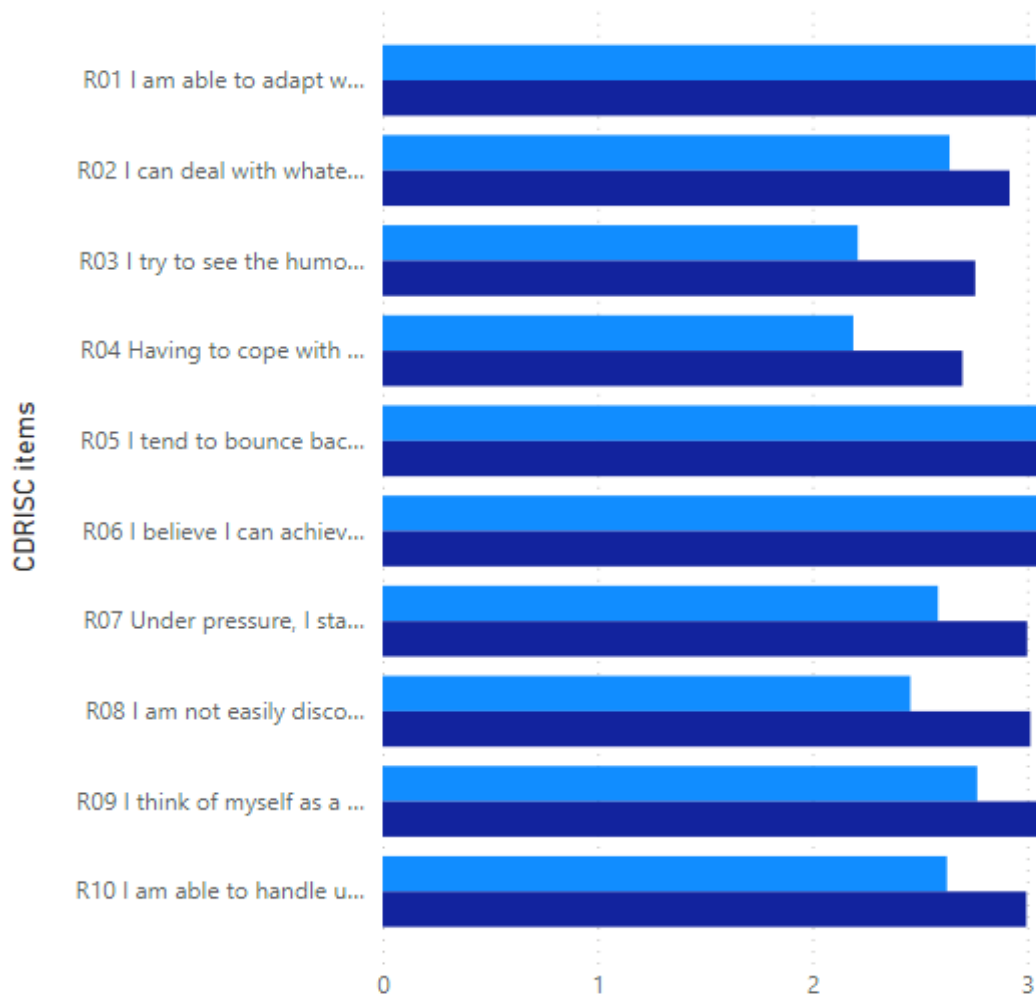


Figure 20. Gender differences in resilience item scores in the Swedish sample.

KEY FINDINGS

- The CD-RISC-10 scale were completed by 511 Swedish participants including with 460 student-athletes, mainly from secondary school level (95%), with 53% of males.
- Key findings on the CD-RISC-10 item level (Figure 19) were very similar to the European DC4MH sample including $M=2,75$ (i.e., between “sometimes” and “often” in all the items) and several items over the mean: “I am able to adapt when changes occur”, “I tend to bounce back after hardship”, “I believe I can achieve my goals”, and “I think of myself as a strong person when dealing with life’s challenges and difficulties”.
- Comparing resilience across genders (Figure 20) showed that males perceived themselves more resilient than females across all the items except for being able to bounce back after illness, injures and other hardships with similar results.

Mental ill-health (MIH)

In the Swedish sample (N=525) anxiety (GAD-7) and depression (PHQ-9) symptoms experienced by the participants during last two weeks before completing the survey were studied using 3-point frequency anchors from “not at all” (0) to “nearly every day”(3). Below Figure 21 shows an overview of perceived MIH issues and the participants, as well as past or current use of professional help. Figures 22-24 contain anxiety data and following Figures 25-27 focus on depression data.



Figure 21. Prevalence of mental ill-health (MIH) diagnosis (left) and help seeking (right) within the Swedish sample.

Anxiety: GAD-7 frequencies

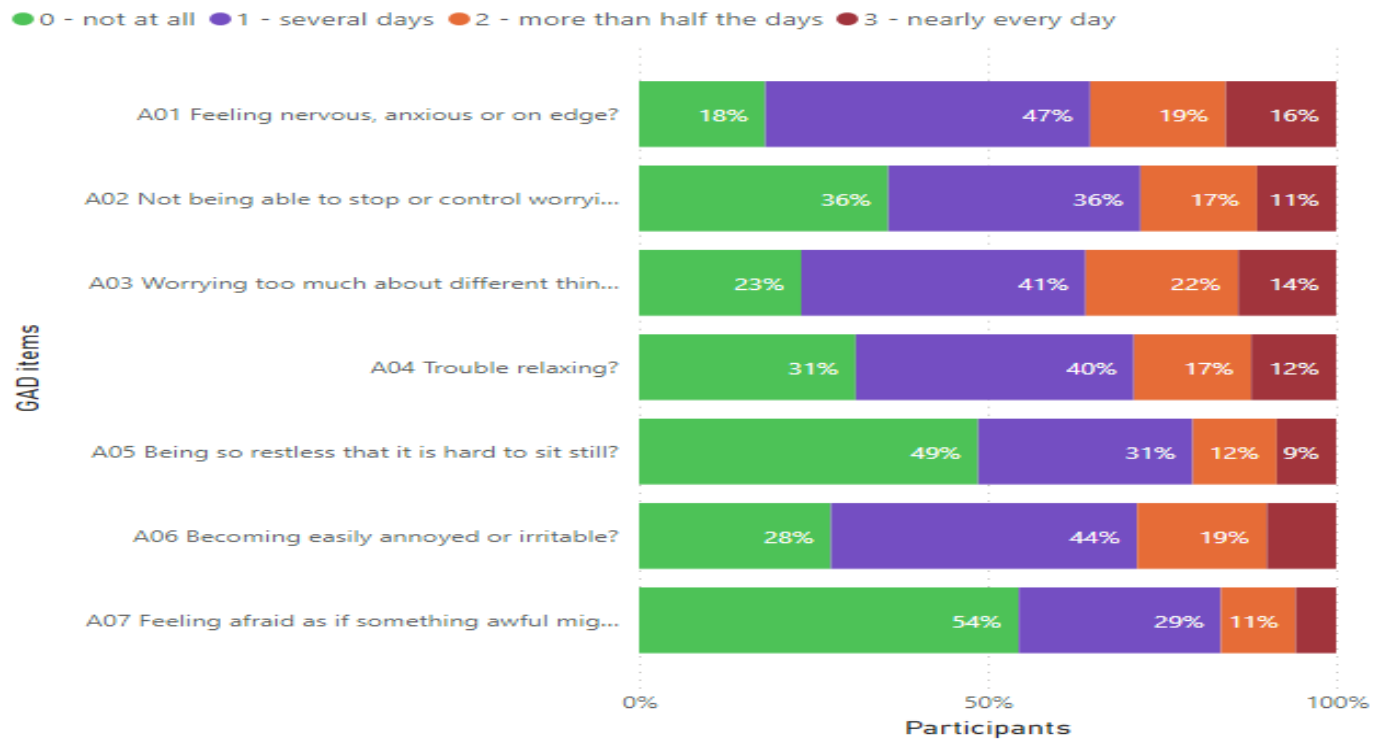


Figure 22. Distributions of answers on GAD-7 anxiety items in the Swedish sample.

Anxiety: GAD-7 cut-offs

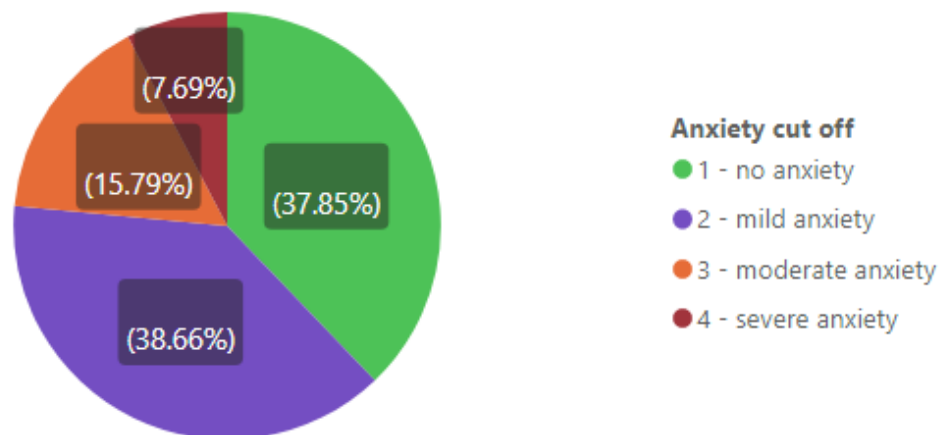


Figure 23. Frequency of participants scoring above anxiety cut-off in the Swedish sample.

Anxiety avg. total score per gender

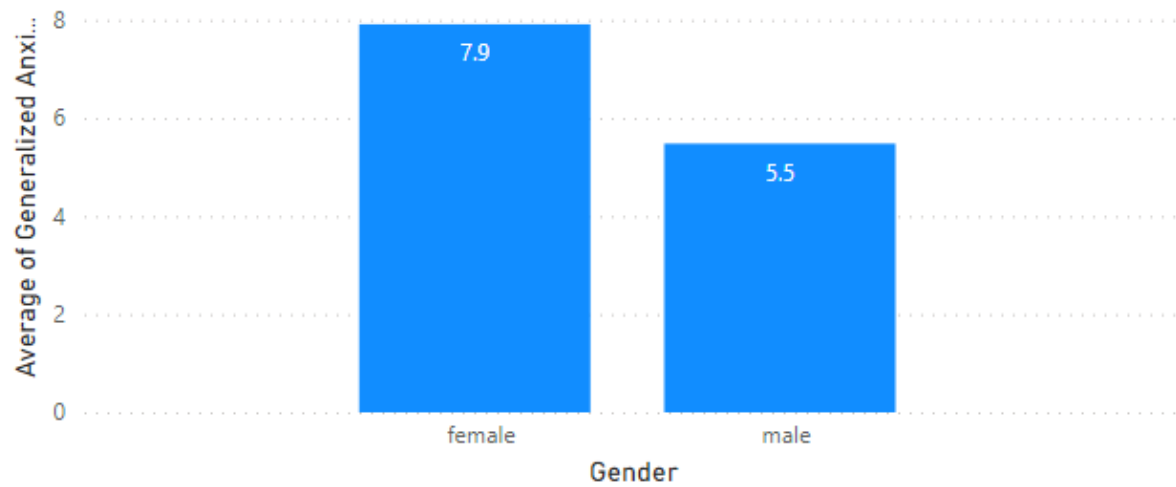


Figure 24. Average anxiety scores in female and male Swedish participants.

Depression: PHQ9 Frequencies

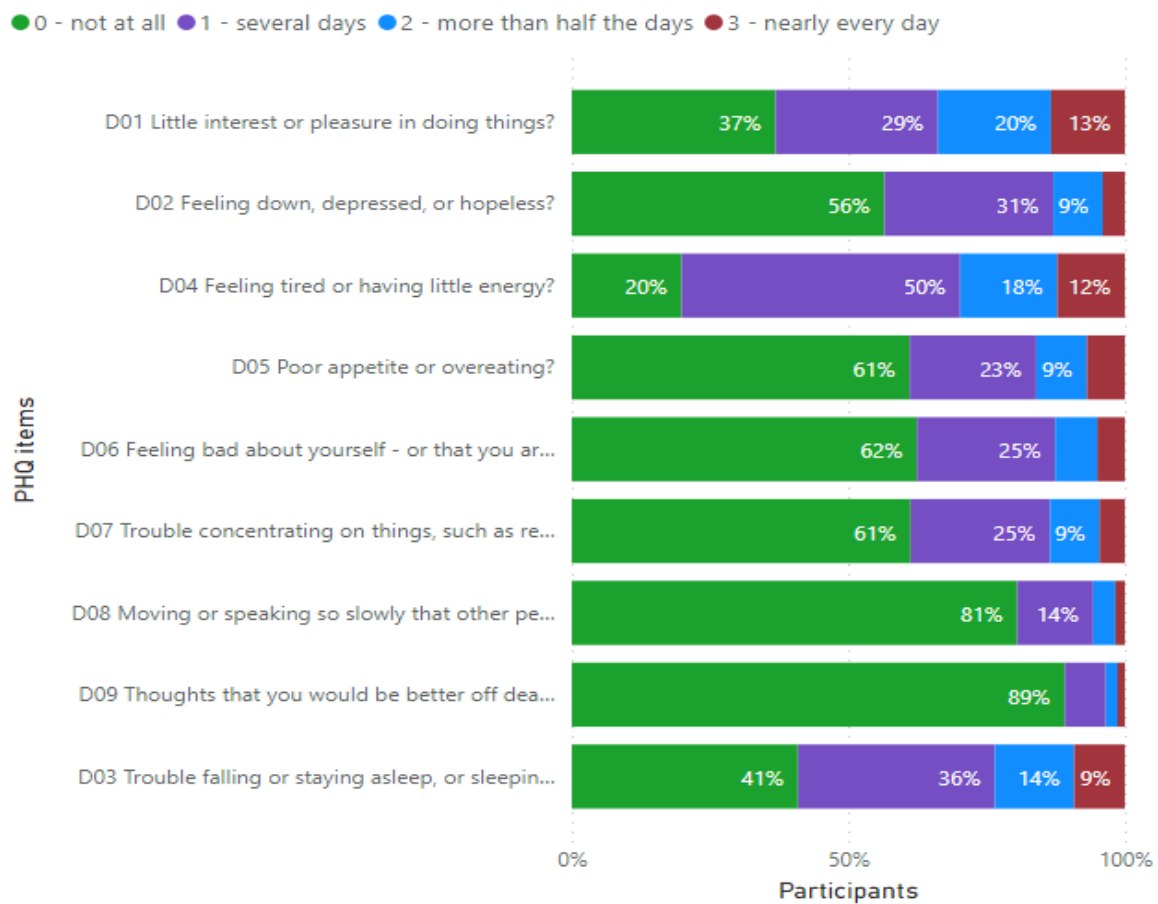


Figure 25. Distribution of answers on PHQ-9 depression items in the Swedish sample.

Depression: Cut-off labels

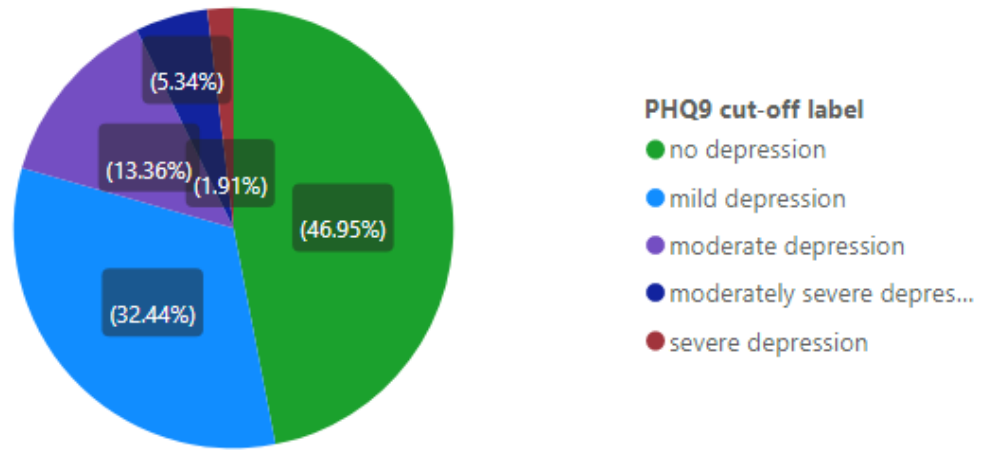


Figure 26. Frequency of the Swedish participants scoring above depression cut-off.

Depression scores between gender

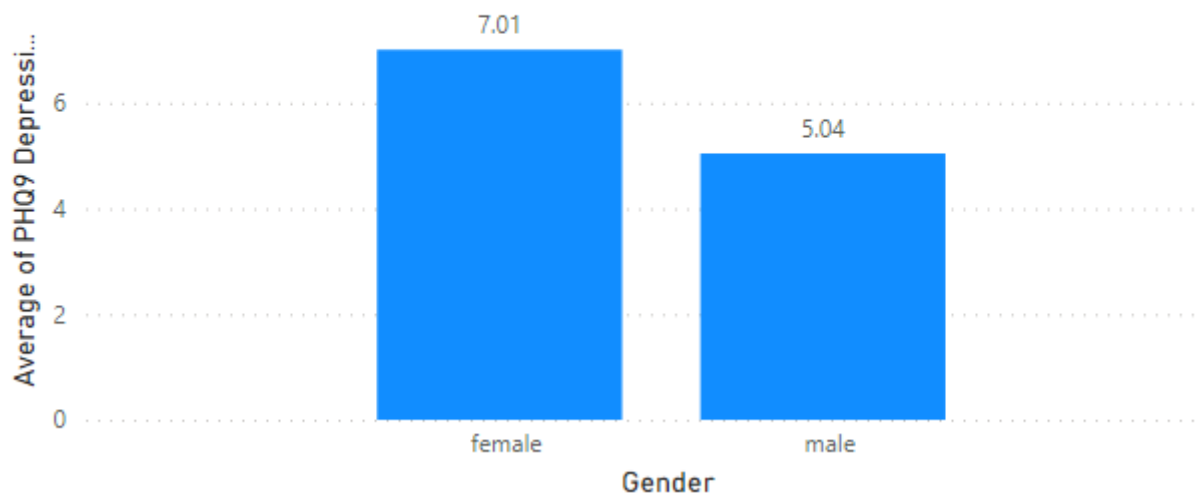


Figure 27. Average depression scores in female and male Swedish participants.

KEY FINDINGS

- Mental ill-health of 525 Swedish participants was explored including 472 student-athletes ($M_{age} = 18.17$, $SD = 3.89$), mainly from secondary school level (95%), with 53% of males.
- Based on Figure 21, 91% of participants didn't report any MIH issues during two weeks prior to completing the survey, and only 6% perceived some symptoms and 3% preferred not to respond. Correspondingly, Figure 21 further confirm that 77% of participants didn't recently address for professional help with MIH issues, but 16% used it in the past and 5% were under professional MH treatment when responded to the survey. These results are well comparable to the European DC4MH sample.
- As Figure 22 shows, highest percentages for anxiety symptoms experienced by the Swedish participants more than half or the days or almost every day were: "worrying too much about different things" (36%), "feeling nervous, anxious, or on edge" (35%), "trouble relaxing" (29%), "not being able to stop or control worrying" (28%) and "becoming easily annoyed" (28%). These results are well comparable with the European DC4MH sample.
- Implementation of GAD-7 cut-offs (Figure 23) revealed that a majority of Swedish participants experienced no or mild anxiety symptoms (77%), while the rest of the sample reported moderate (16%) or severe anxiety (7%). Compared to the European sample, the Swedish participants reported no anxiety symptoms visibly more often and severe anxiety symptoms – less often.
- As Figure 24 shows, female participants experienced visibly higher level of anxiety ($M=7.9$) than male participants ($M=5.5$).
- Based on the PHQ-9, among depression symptoms (Figure 25) experienced by the Swedish participants more than half the days or nearly every day during the last two weeks before completing the survey were: "little interest or pleasure to do things" (33%), "feeling tired or having little energy" (30%) and sleep disturbances (25%). These results are well comparable with the European DC4MH sample.
- Implementation of PHQ-9 cut-offs (Figure 26) revealed that a complete majority of Swedish participants experienced no or mild depression symptoms (about 80%), followed by moderate depression (13%) and moderate-severe and severe depression (about 7% together). These results are skewed to the positive side in all cut-off labels compared to the European sample.
- Differences in depression-scores between gender groups (Figure 27) are similar to the GAD-7 data: female participants experienced visibly higher level of depression ($M=7.0$) than male participants ($M=5.0$).
- To sum up, a complete majority of Swedish participants didn't report any MIH issues supported by no or mild anxiety and depression symptoms. At the same time, about one-third of the participants experienced anxiety and/or depression symptoms more than half the days or nearly every day with about 7% in moderate severe or severe forms. Females showed higher total means in both anxiety and depression compared to males.

Life satisfaction and impact of COVID-19

Below Figure 28 reveals distribution of the Swedish participants in terms of life satisfaction with different spheres of life (e.g., various activities, physical and mental health, everyday routines). Figure 29 shows how the same spheres of life were influenced positively or negatively by COVID-19 pandemic coincided with the data collection. Comparison of life satisfaction items in injured and non-injured participants is presented on Figure 30.

HMQ: Satisfaction frequencies

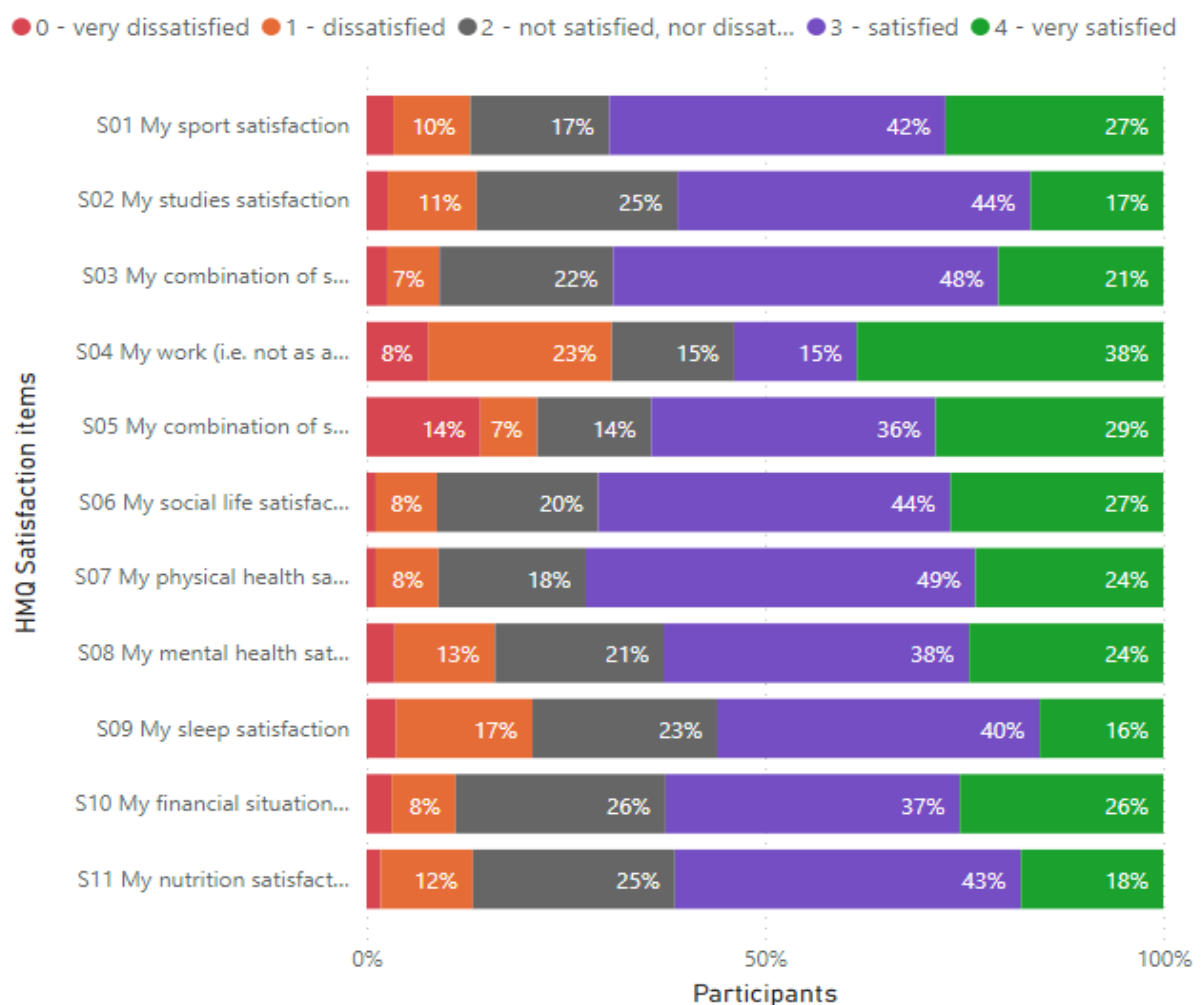


Figure 28. Frequencies of life satisfaction item scores in the Swedish sample.

HMQ: Satisfaction frequencies

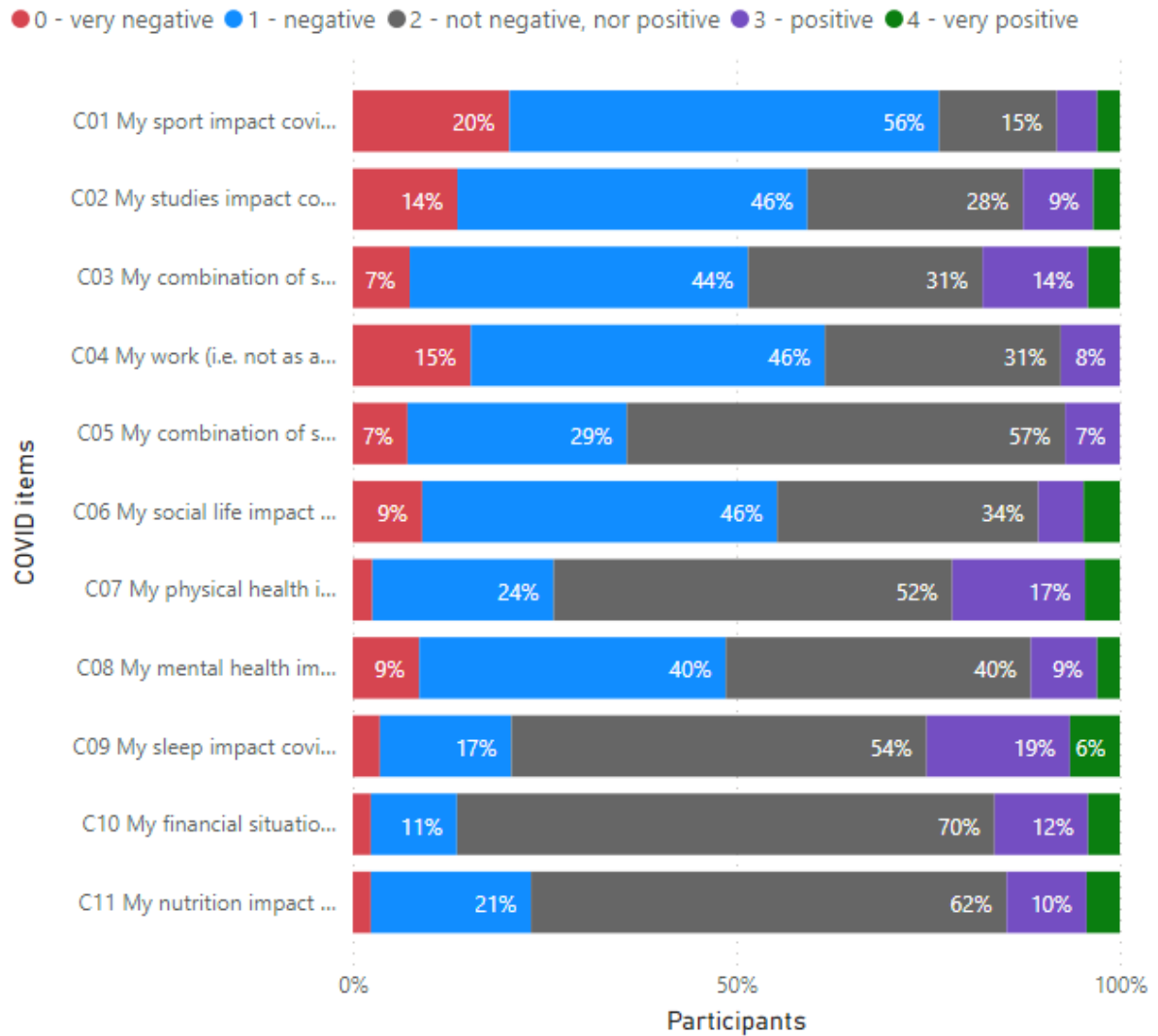


Figure 29. Perceived influence of COVID-19 on life satisfaction items in the Swedish sample.

HMQ: avg satisfaction about life aspects; per injury status

Are you currently injured? ● 0 ● 1

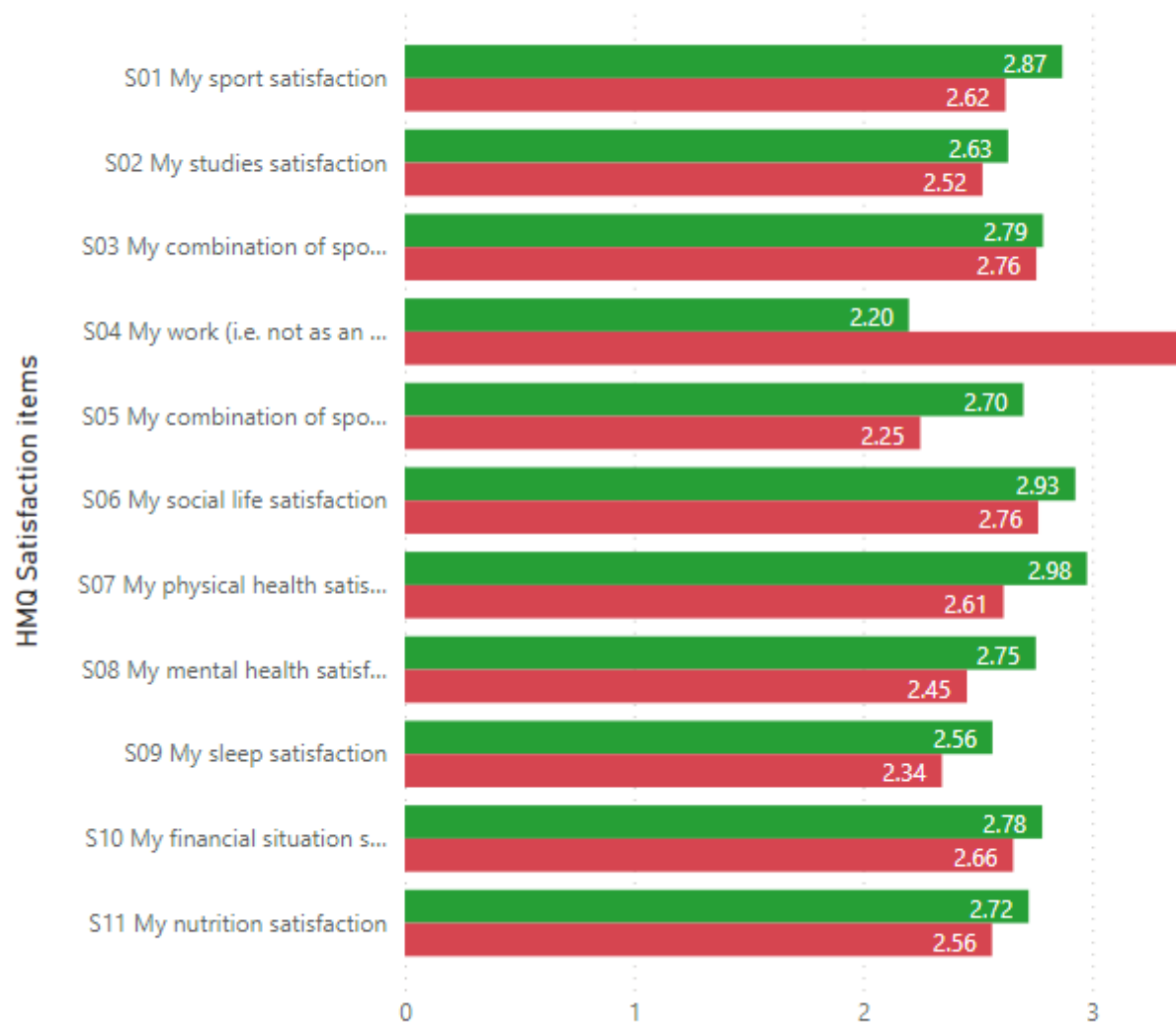


Figure 30. Average level of life satisfaction between injured and non-injured Swedish participants.

KEY FINDINGS

- Life satisfaction and impact of COVID-19 pandemic was explored in 497 Swedish participants including 456 student-athletes, mainly from secondary school level (95%), with 53% of males.
- As shown on Figure 28, More than 50% of the Swedish participants were satisfied or very satisfied with all the listed aspects of their life, and especially with physical (73%) and mental (62%) health, social life (71%), sport (69%), studies (61%), and combination of sport and studies (69%). The highest percentages of dissatisfied and very dissatisfied participants were found in terms of work (31%) and combination of sport and work (21%). Compared to the European DC4MH sample, more Swedish participants were very satisfied or satisfied as well as less dissatisfied or very dissatisfied with almost all the items, for example, in regard of social life, mental health, sleep, and financial situation.
- Figure 29 shows that round 50% and more of the Swedish participants reported negative or very negative impact of COVID-19 pandemic in terms of sport (76%), studies (60%), work (61%), social life (55%), and mental health (49%). Lower or no negative impact was revealed in regard of physical health, nutrition, sleep, and financial situation. A perceived impact of the pandemic on mental health in Swedish sample is comparable with the European DC4MH sample, but (with the same reference) slightly more Swedish participants were negative about an impact on sport, studies and combination of sport and studies.
- To illustrate intergroup differences, we compared life satisfaction in injured and non-injured participants (Figure 30). Life satisfaction means in non-injured participants are slightly higher than in injured ones and are between neutral and satisfied. One exclusion is work satisfaction, which is visibly higher in injured participants.

Link between study constructs

Figures 31-36 and Tables 1-4 contain results of correlation and regression analyses illustrating links between the study constructs.

		Correlations								
		DC_CompBen	DC_Negative	DC_Support	MHC-SF Average score	Generalized Anxiety Disorder Total score (0 - 21)	PHQ9 Depression - Total score (0 - 27)	Mental Health Literacy Total score (with 3 reversed items)	Resilience Connor Davidson CDRISC10 Total score (0 - 40)	Holistic Monitoring Questionnaire avg Satisfaction
DC_CompBen	Pearson Correlation	1	-,368**	,563**	,621**	-,347**	-,390**	,312**	,565**	,584**
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000	,000	,000
	N	472	472	472	472	472	471	464	460	459
DC_Negative	Pearson Correlation	-,368**	1	-,429**	-,331**	,493**	,464**	-,249**	-,275**	-,433**
	Sig. (2-tailed)	,000		,000	,000	,000	,000	,000	,000	,000
	N	472	472	472	472	472	471	464	460	459
DC_Support	Pearson Correlation	,563**	-,429**	1	,431**	-,339**	-,334**	,332**	,406**	,469**
	Sig. (2-tailed)	,000	,000		,000	,000	,000	,000	,000	,000
	N	472	472	472	472	472	471	464	460	459
MHC-SF Average score	Pearson Correlation	,621**	-,331**	,431**	1	-,395**	-,423**	,307**	,478**	,609**
	Sig. (2-tailed)	,000	,000	,000		,000	,000	,000	,000	,000
	N	472	472	472	487	487	486	478	474	473
Generalized Anxiety Disorder Total score (0 - 21)	Pearson Correlation	-,347**	,493**	-,339**	-,395**	1	,756**	-,149**	-,347**	-,456**
	Sig. (2-tailed)	,000	,000	,000	,000		,000	,001	,000	,000
	N	472	472	472	487	487	486	478	474	473
PHQ9 Depression - Total score (0 - 27)	Pearson Correlation	-,390**	,464**	-,334**	-,423**	,756**	1	-,247**	-,322**	-,515**
	Sig. (2-tailed)	,000	,000	,000	,000	,000		,000	,000	,000
	N	471	471	471	486	486	486	477	473	472
Mental Health Literacy Total score (with 3 reversed items)	Pearson Correlation	,312**	-,249**	,332**	,307**	-,149**	-,247**	1	,296**	,230**
	Sig. (2-tailed)	,000	,000	,000	,000	,001	,000		,000	,000
	N	464	464	464	478	478	477	478	474	472
Resilience Connor Davidson CDRISC10 Total score (0 - 40)	Pearson Correlation	,565**	-,275**	,406**	,478**	-,347**	-,322**	,296**	1	,472**
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000		,000
	N	460	460	460	474	474	473	474	474	472
Holistic Monitoring Questionnaire avg. Satisfaction	Pearson Correlation	,584**	-,433**	,469**	,609**	-,456**	-,515**	,230**	,472**	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000	,000	
	N	459	459	459	473	473	472	472	472	473

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

Figure 31. Correlations between the study variables.

Relationship DC experiences - General wellbeing

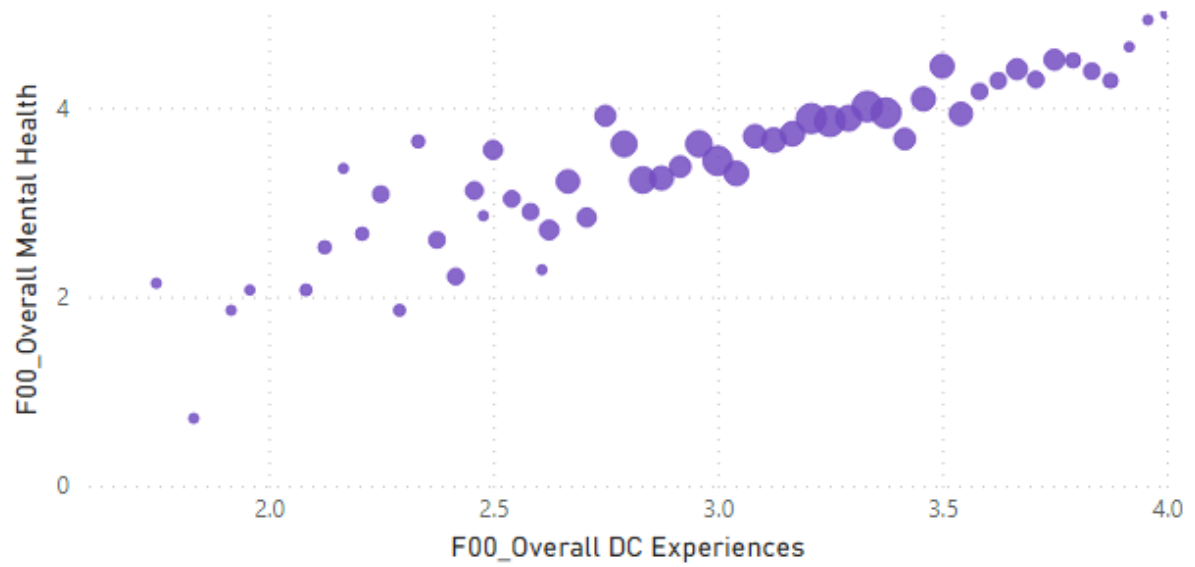


Figure 32. Relationship between mental health and DC experiences

Relationship DC experiences - Wellbeing per wellbeing factor

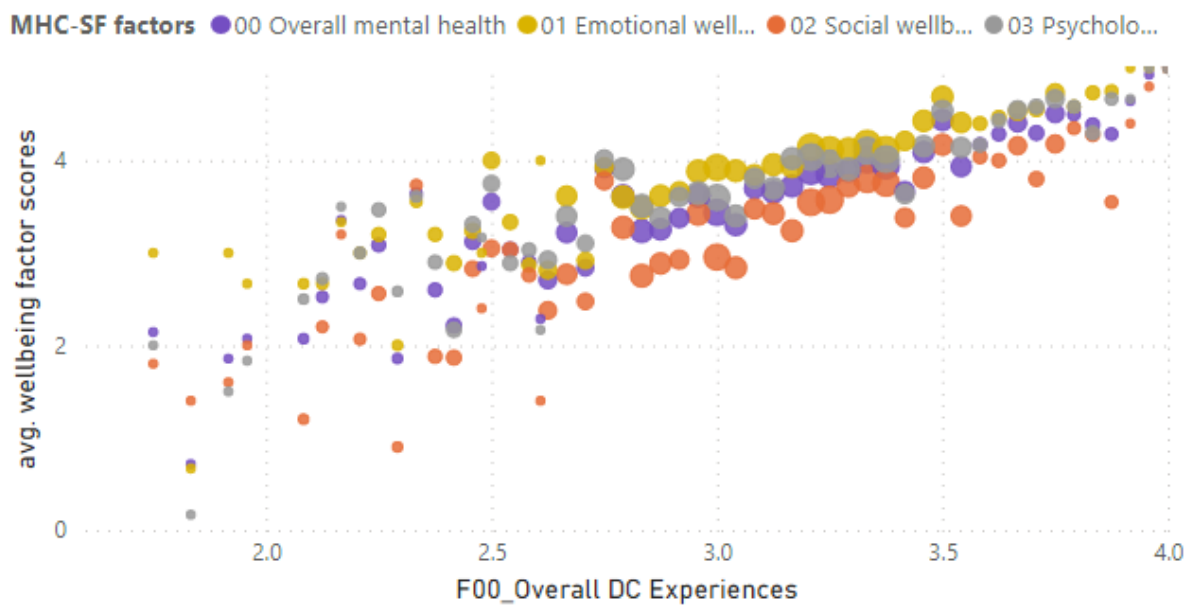


Figure 33. Relationships between different factors of well-being and DC experiences

Relationship overall DC experiences - Anxiety

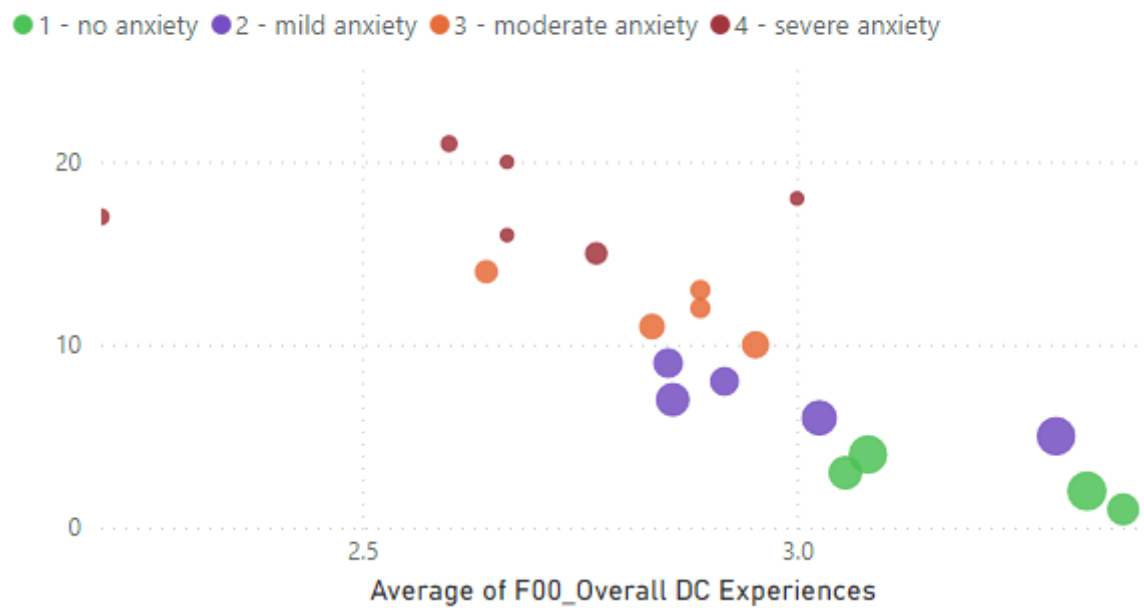


Figure 34. Relationships between anxiety and DC experiences.

Negative DC experiences - Depression; per gender

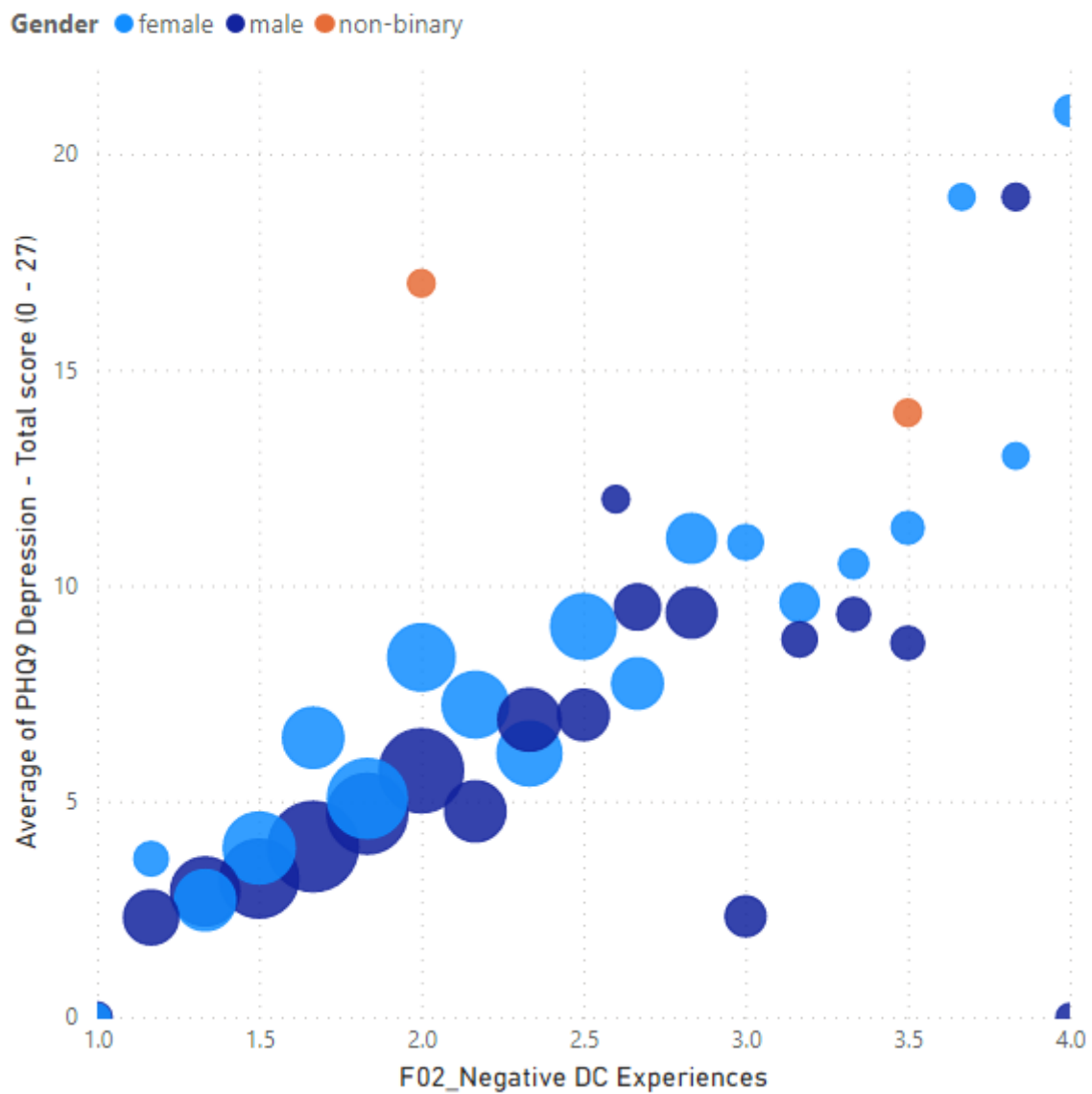


Figure 35. Relationships between depression and negative DC experiences, per gender.

General wellbeing - Resilience

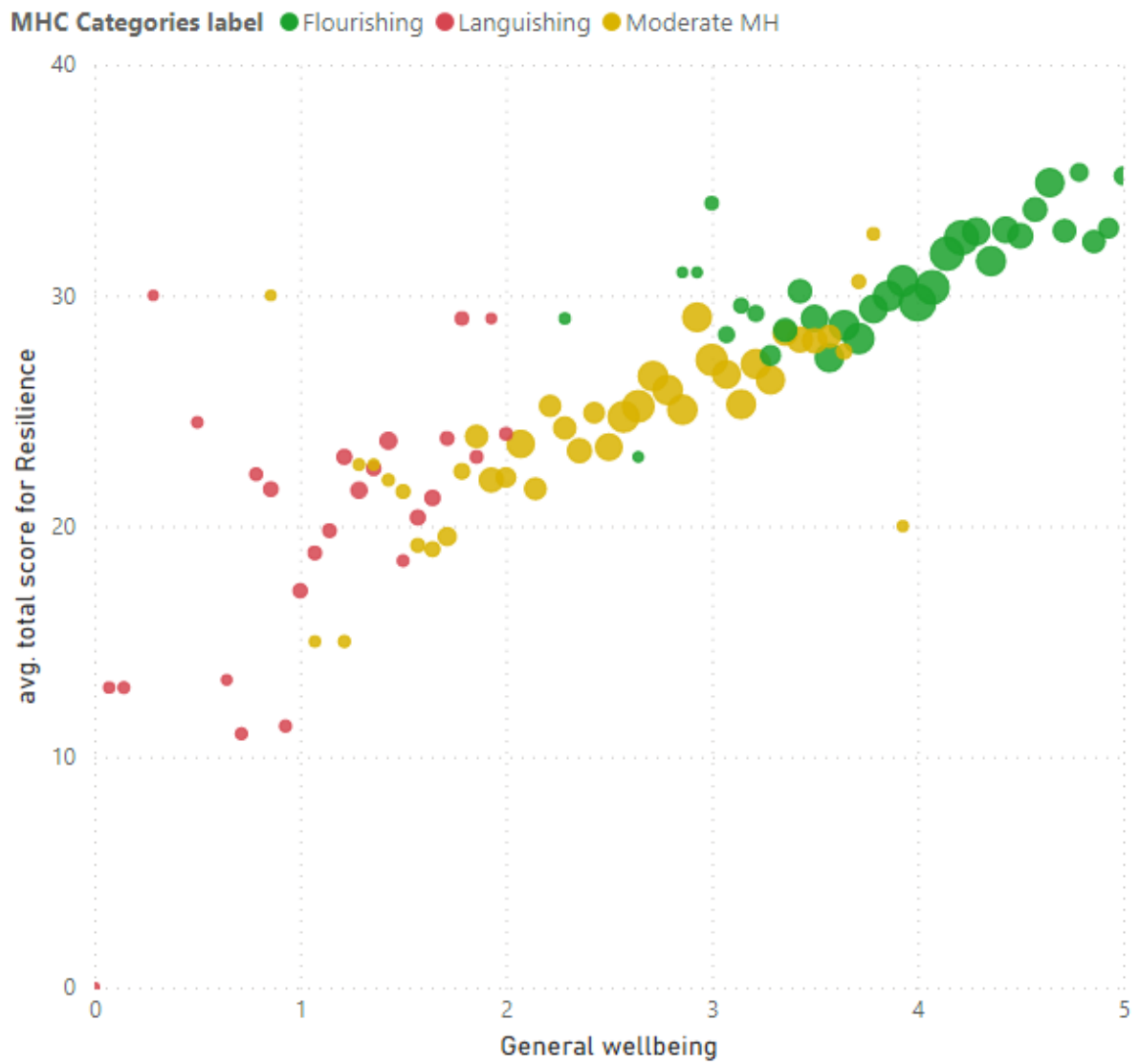


Figure 36. Relationship between general well-being and resilience.

Table 1. Predictors of Mental Health in the DC sample

Variable	Beta	P-value
Mental Health Literacy	.14	.001
Resilience	.09	.059
Life satisfaction	.27	<.001
Perceived impact of COVID-19	.10	.006
Diagnosis of MH issues	-.07	.076
DC CompBen	.33	<.001
DC Support	.02	.723
DC Negative	-.01	.932
Gender	.04	.249
Age	.00	.968

Note: Adj R² = 47%

Table 2. Predictors of Anxiety symptoms in the DC sample

Variable	Beta	P-value
Mental Health Literacy	-.08	.076
Resilience	-.05	.312
Life satisfaction	-.25	<.001
Perceived impact of COVID-19	.05	.221
Diagnosis of MH issues	.22	<.001
DC CompBen	.10	.069
DC Support	-.07	.136
DC Negative (reversed)	.33	<.001
Gender	-.19	<.001
Age	-.03	.533

Note: Adj R² = 38%

Table 3 Predictors of Depressive symptoms in the DC sample

Variable	Beta	P-value
Mental Health Literacy	-.19	<.001
Resilience	.02	.623
Life satisfaction	-.42	<.001
Perceived impact of COVID-19	.13	.002
Diagnosis of MH issues	.12	.004
DC CompBen	.05	.364
DC Support	-.01	.862
DC Negative	.24	<.001
Gender	-.15	<.001
Age	-.06	.136

Note: Adj R² = 37%

Table 4. Predictors of DC Experiences

Variable	Beta	P-value
Mental Health Literacy	.15	<.001
Resilience	.20	<.001
Life satisfaction	.32	<.001
Perceived impact of COVID-19	-.02	.531
Diagnosis of MH issues	.05	.192
Mental Health	.22	<.001
Anxiety symptoms	-.15	.003
Depressive symptoms	.01	.847
Gender	.04	.223
Age	-.06	.091

Note: Adj R² = 55%

KEY FINDINGS

- Overall, the results from the correlation analyses showed that there were positive relationships between the DC variables and mental health. Also, there were positive correlations between resilience, mental health literacy, life satisfaction, and mental health. Negative correlations were identified for all variables in relation to mental ill-health (anxiety and depressive symptoms) (see Figure 31 and also Figures 32-36 illustrating the links between the study constructs),

Predictors of Mental Health in DC athletes

- Due to small sample size in all groups except the DC athlete group we decided to conduct all analyses only using the DC sample. Using Mental health as the dependent variables the results from the regression analysis showed that the included independent variables could together explain 47% of the variance. The strongest predictors of mental health were DC competences and benefits ($\beta = .33, p < .001$), satisfaction ($\beta = .27, p < .001$), and mental health literacy ($\beta = .14, p = .001$) (see Table 1).
- The independent variables could explain 38% and 37% of the variance in anxiety symptoms and depressive symptoms, respectively. Main predictors of anxiety symptoms were life satisfaction ($\beta = -.25, p < .001$), mental health diagnosis ($\beta = .22, p < .001$), and negative dual career experiences ($\beta = .33, p < .001$). Also, females reported, more frequently higher values ($\beta = -.19, p < .001$). For depressive symptoms the main predictors were life satisfaction ($\beta = -.42, p < .001$), mental health literacy ($\beta = -.19, p < .001$), and negative dual career experiences ($\beta = .24, p < .001$) (see Tables 2-3).

Predictors of athletes' overall DC experiences

- Main predictors of overall DC experiences were mental health literacy ($\beta = .15, p < .001$), life satisfaction ($\beta = .32, p < .001$), resilience ($\beta = .20, p < .001$), mental health ($\beta = .22, p < .001$), and anxiety symptoms ($\beta = -.15, p = .003$) explaining for 55% of variance (see Table 4).

Next steps

RECOMMENDATIONS FOR FUTURE RESEARCH:

- Consider expanding the national DC survey by including some scales from the DC4MH survey.
- Continue to longitudinally monitor student-athletes' DC experiences in regard to mental health and wellbeing using updated national DC survey.
- Consider conducting case studies on positive experiences of promoting mental health issues at various DC development environments.
- Consider conducting intervention studies at individual, group, or/and organizational levels.

RECOMMENDATIONS FOR PRACTICE:

- Continue to develop further Swedish DC system at all the educational levels.
- Stimulate development of initiatives on inclusion of mental health, mental health literacy, and resilience topics into DC students' education (e.g., within the official courses or as additional workshops or similar organized by DC coordinators/ support providers).
- Work on providing more opportunities for student-athletes to get professional support in terms anxiety, depression, and other mental ill-health issues; promote no stigma of addressing for professional help.
- Use results of the DC4MH study in national education of DC support providers at educational institutions and representatives of National Sport Federations.
- Enhance network of DC development environments across country to share positive practice examples on promoting student-athletes' mental health and wellbeing.
- Strength mental health issues in the next edition of Swedish National Dual Career Guidelines.