

Gender and Age-Related Variations in Elite Student-Athletes' Experiences of Organizational Stressors

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ABSTRACT

The study investigated gender and age-related group differences of experienced organizational stressors across young adults in popular sports. For this purpose, 93 males (60%) and 62 females (40%) student-athletes ($n = 155$) aged between 18 and 30 were conveniently surveyed using the Organizational Stressor Indicator for Sport Performers (OSI-SP) through a cross-sectional design. The frequency, intensity and duration dimensions were assessed under the five subcategories of the OSI-SP: "Goals and Development", "Logistics and Operations", "Team and Culture", "Coaching" and "Selection" using the multivariate analysis of variance (MANOVA). There were no significant differences between gender and age groups in the frequency of occurrence of student-athletes' organizational stressors. However, significant differences were found only in the subcategory "team and culture" under the duration and intensity dimensions of organisational stressors. Specifically, female and younger student-athletes experienced team and culture-related stressors longer and more intense than their male and older counterparts. Based on these findings, sport coaches, sport psychologists and directors of sports working with elite student-athletes in the universities could integrate or design stress management interventions. The rationale for these is to help athletes develop appropriate team dynamics to promote appropriate team culture, climate and optimum well-being, especially for female and younger student-athletes.

Keywords: Age, Gender, Organisational Stressors, Student-athletes

INTRODUCTION

Competing in sports is particularly associated with several stressful situations (stressors) that not only affect athletes during performance encounters [1-2], but also their general health and well-being if not managed well [3-6]. Even though these stressors can be experienced at the performance or individual level [2], previous studies have revealed that organisational stressors; conceptualised as the "environmental demands that are primarily and directly related to the organization in which an individual operates" [7] are typically common across the experiences of competitors in sports [8]. Previous stress researchers have indicated that individuals who encounter stressors and fail to effectively manage such situations may also be affected either physically, mentally [7,9-10], and academically [11] because of the multiple tasking engagements. Specifically, the experience of stressors can lead to anxiety, burnout, negative emotions, overtraining or undertraining, low self-confidence, depression, fear of failure, dropping out from work, and mood swings [6,8,12-13]. However, it is argued that human beings are able to positively manage numerous stressors,

and that, not every stressful situation would necessarily lead to stress depending on their ability to appraise and cope with such situations.

To establish the stressful nature of the sport working environment, several studies have found varied results [2,6,16-18]. For example, as many as 640 specific stressors were recorded from the organizational environment within which 1809 sport performers were operating [16]. These identified stressors by [16] were compiled from 34 studies and were later categorised into four (4) namely: cultural and team issues like team atmosphere, communication, support; logistical and environmental issues like selection, equipment, facilities; performance and personal issues like career transition, injuries; and leadership and personal issues like external expectations and coaches' behaviour. Similarly, Woodman and Hardy [19] subdivided organizational stressors into four main areas, including issues with team-like roles, social network, communication, team atmosphere; environmental issues like finances, selection, training environment; leadership issues like coaching styles, coaches personality and attitude, coach interactions, support staff, sport officials; and personal issues like injuries, nutrition and goals of the individual. Further, Srem-Sai et al. [18] found organizational stressors related to selection, team issues and logistics and operations-related constraints. In a study carried out by QiWei and Anshel [20] among Chinese elite college athletes, teammates' error and verbal abuse by a teammate were among the most pressing demands encountered by the student-athletes. Moreover, in studying organizational stressors among US professional soccer players, Kristiansen and Murphy [17] found league and team structure among a number of stressors identified, highlighting the importance placed on team-related stressors among sport performers.

Obviously, the organizational stressors encountered by athletes have been discussed extensively in the stress literature. However, not much is known about these stressful experiences based on participants' specific personal-related profiles such as gender and age. Numerous demographic factors have also been found to influence the stress process. Specifically, self-confidence, culture, social support and goals can impact the person-environment connection as well as the individual's emotional states and performance [7]. Depending on how these variables inter-relate or interact, these factors can make a sport performer either prone to or resilient to most stressful encounters, indicating that the frequency, intensity and duration of a stressor is specific to the individual's psychological strength and capability. Therefore, investigating whether demographic characteristics such as gender and age variations in the sub-dimensions of situations viewed as stressful within the organizational setting across the sub-scales will assist practitioners to design effective and more appropriate stress management interventions for elite sport performers within the school environment [21].

The few studies that have studied elite athletes' stress encounters have majorly focused on samples that compete using only males [18,22-23] only females [24-25], males and females [26-29], same sport like football [18,30]-, Cricket [31], rugby union [22], different sports [26,28], and a sample that competed at the same level such as the professional[18,22,32], high school[23], university[25], and different levels [26-27,29]. Previous studies [22,26] have explicitly studied the demographic differences among sport performers with varied findings. Notably, Nicholls et al. [22] found gender differences across competitors in different sporting events. Specifically, female athletes reported demanding situations related to team and

communication while males reported more injury-related demands. Similarly, Anshel et al. [33] found that female athletes experienced more intense stressors related to teammates and coaches than their male colleagues. Additionally, Arnold et al. [26] also found significant variations between females and males involved in varied sports. Particularly, Arnold and colleagues found that male athletes reported significantly higher frequency, intensity and duration of logistics and operations than their female counterparts. However, age has been found to relate with the organizational stress experiences of sport performers. For example, Hammermeister and Burton [34] found older athletes in endurance exhibiting reduced cognitive anxiety than their younger colleagues because during the performance situation, they used ego-threatening goals. However, Srem-Sai et al. [18] in their study of organizational stressors experienced by elite football players found no age-specific variations on all the sub-categories of the organizational stressor indicators.

Considering the variations in the findings above and the effort to investigate different groups of sport performers, it is important to consider a sample that is more heterogeneous across different age groups, genders, sports and skill levels [26] as well as in a non-western population. Besides, most of these researchers did not particularly examine demographic variations of sport performers' organizational stress encounters within the school setting.

Even though stress researchers [2,6,16-18,26] have established the many stressors experienced by sport performers within performance and organizational settings, the dual role of being a student and a performer which could be extremely stressful has rarely been accounted for in sport psychology literature. It is important to recognize that elite student-athletes from developing countries like Ghana prepare for competitions under unsavoury conditions such as being trained by inexperienced teachers/coaches and have limited access to high-standard equipment/ facilities than their peers from developed countries. Therefore, it is more likely that organizational stressors experienced by these performers could differ from student-elite competitors abroad. Hence, determining the organizational stressors experienced by elite student-athletes is worthwhile and will advance knowledge and theory in this field. Moreover, within the context of Ghana, no known study has yet been done on the stressors experienced by student-athletes. Even though Srem-Sai et al. [18] have conducted some stress-related studies in sports in Ghana, the authors concentrated on only the intensity dimension of the OSI-SP, one sport (football) and only male elite football coaches and players. This study attempts to address some of these methodological gaps. From applied practitioner's standpoint, inadequate management of stressors in sports can lead to mental health issues- anxiety, burnout, stress, and perhaps, the termination of the sporting activity by the individual [36]. Additionally, to extensively examine the organizational stressors experienced by elite student-athletes across gender and age, there is the need to adopt a more reliable and valid instrument [37]. To promote these measurement validity issues, the OSI-SP (Organizational Stressor Indicator for Sport Performers) developed by Arnold et al. [38] serves as an effective assessment tool for such purposes among sport performers in a multi-dimensional way.

Therefore, this study examined which organizational stressors are experienced among elite student-athletes and investigates the variations across gender and age in the school environment. Based on the literature, the following hypotheses were tested across the frequency, duration, and intensity sub-dimensions of the OSI-SP and stated as follows;

Hypothesis I

- H_0 : There will be no significant group differences of the mean values in the sub-categories of the OSI-SP for the frequency of the stressors across gender and different age groups.

Hypothesis II

- H_0 : There will be no significant group differences of the mean values in the sub-categories of the OSI-SP in the duration of stressors across gender and different age groups.

Hypothesis III

- H_1 : There will be no significant group differences of mean values in the sub-categories of the OSI-SP in the intensity of stressors across gender and different age groups.

METHODS**Study Design and Sample**

To identify the organizational stressors that affect student athletes of different genders and age groups, participants were asked to respond to the OSI-SP (organizational stressor indicator for sport performers) developed by [38] using the cross-sectional survey design. One hundred and fifty-five ($n = 155$) student-athletes were involved in this study using the convenient sampling method. Sixty per cent, 60% ($n = 93$) and 40% ($n = 62$) of the participants were males and females respectively. The ages of the participants ranged from 18 years to 30 years (mean: 23.7 ± 3.75 years). The participants were selected from different sports including soccer, handball and athletics at different performance levels (no competition up to national level) and different training workloads who classified themselves as beginner ($n = 98$) and advanced ($n = 57$) and performed their respective sports at least once every week for more than a year. These disciplines were chosen because the students predominantly participated in these sports. The average training load was 34h per week for each student-athlete. All the participants were first year student athletes who were on a bachelor degree programme in the University of Education, Winneba in the 2021/2022 academic year.

Study Measures**Organizational Stressor Indicator for Sport Performers Scale (OSI-SP; [38]):**

To measure organizational stressors among student athletes, the Organizational Stressor Indicator for Sport Performers (OSI-SP) was used. In this process athletes were asked to rate the 23-items in the five subscales including; Goals and Development (6 items; e.g., "My goals"), Logistics and Operations (9 items; e.g., "The technology used in my sport"), Team and Culture (4 items; e.g., "The atmosphere surrounding my team"), Coaching (2 items; e.g., "My coach's personality") and Selection (2 items; e.g., "How my team is selected") in terms of frequency, duration, and intensity. The frequency parameter determines how often the athletes were confronted with the stressors in a certain time unit. The items were measured on a 5-point likert type scale ranging from 0 (never) to 5 (always). The intensity parameter indicates the perceived strength of the stressor, for example; "How demanding was this pressure?" ranging from 0 (no demand) to 5 (very high). To identify if the dimension of the stressor was acute (i.e., generally of short duration) or chronic (i.e., typically of longer duration), it was recorded using the question "How long did this pressure place a demand on

you for"? and the scale ranged from 0 (no time) to 5 (a very long time). For scoring purposes, the average of the frequencies, intensities and durations was calculated for each category.

The OSI-SP has been tested for objectivity, reliability, and validity and can be used to assess organizational stressors in different groups of athletes and for significant comparisons between them [39-40].

Data Collection Procedure

Following ethical approval from the Institutional Review Board of the University of Cape Coast with a reference ID of UCCIRB/CES/2020/42, all ethical considerations under the 6th edition of the Declaration of Helsinki were complied with. Additional permission was sought from the Head of the Department of Health, Physical Education, Recreation and Sports (HPERS) of the University of Education, Winneba. The data collection process started by familiarizing with the coaching staff and student athletes' of the HPERS Department to brief them on the objectives of the study at an assembly ground. Each item on the questionnaire was explained to all the student athletes. Clarifications were made for those who needed further explanations. Prior to collecting the data, anonymity, voluntary involvement, confidentiality and data protection were assured. Each student athlete who was willing to participate in the study was asked to read and sign the consent forms before the survey instruments were distributed and administered with the help of 2 assistant coaches. The data was collected one time and within 15-20 minutes. All questionnaires that were filled-out were collected by the assistant coaches and put in brown envelopes for safe keeping and protection.

Data Analysis

To examine the extent to which the effect of organizational stressors differed on different genders and age groups, the data was tested statistically for multivariate outliers, linearity, missing data, multicollinearity, univariate and multivariate normality and variance-covariance matrix homogeneity. Scatter plots were employed to test for assumptions of linearity and outliers. To test univariate and multivariate normality, Q-Q plots were employed to check whether all the data points were nearer to the line. The Box's *M* test of equality of covariance matrices was employed to examine the homogeneity of variance-covariance assumptions. Assumptions of multicollinearity were assessed to determine the connectedness of the dependent variables in order to reduce the errors in the real data to be analysed. The IBM SPSS statistical software version 22 was employed to analyse the cleaned data. The demographic data of participants (gender, age) and the organisational stressors experienced including "Goals and Development" (GD), "Logistics and Operations" (LO), "Team and Culture" (TC), "Coaching" (C), and "Selection" (S) were examined using means and standard deviations. Again, the factorial Multivariate Analysis of Variance (MANOVA) was used to assess the association between the organisational stressors and the gender and ages of the study participants. Gender and ages of participants as well as the organisational stressor indicators were the independent variables and dependent variables for this study respectively.

RESULTS

To investigate the extent to which the effect of organizational stressors differs across gender and different age groups, the descriptive statistics (means and standard deviations) are

considered for frequency, duration, and intensity, followed by MANOVA and post-hoc test results.

Stress Frequency

The mean values and standard deviations of the assessments of the stress frequencies are shown in Table 1. It is noticeable that the highest mean value was $1.92 \pm 1,281$ points (for S, among 21 years or younger females). Accordingly, the study participants experienced the stressors on average at highest "sometimes" continuum. The level of the standard deviations varies greatly. The mean value of all categories is 0.87 ± 0.515 points, which indicates a "rare" frequency. When comparing the gender variable, it is evident that, except of five categories, the mean value of the assessments of the female participants was higher than those of the male participants (see Table1). Nevertheless, it was necessary to check whether this difference is significant. No clear trend was recognizable when comparing the age groups with each other (see Table 1).

Table 1: Descriptive statistics of stress frequency

Sub-category	Age	Male		Female		All genders	
		Mean	SD	Mean	SD	Mean	SD
Coaching	21 years or younger	1,00	0,935	1,17	0,683	1,07	0,821
	22 - 23 years	0,79	0,756	1,23	0,753	1,09	0,766
	24 - 25 years	0,57	0,932	0,71	1,113	0,64	0,989
	Over 25 years	0,44	0,563	0,67	1,155	0,50	0,707
	Total	0,71	0,804	1,05	0,860	0,88	0,843
Goals and Development	21 years or younger	1,17	0,507	1,58	0,524	1,33	0,538
	22- 23 years	1,12	0,497	1,07	0,684	1,08	0,619
	24 – 25 years	0,67	0,577	0,86	0,339	0,76	0,466
	Over 25 years	1,06	0,707	1,17	0,441	1,09	0,625
	Total	1,02	0,583	1,13	0,600	1,07	0,590
Logistics and Operations	21 years or younger	0,60	0,409	0,60	0,369	0,60	0,380
	22- 23 years	0,31	0,261	0,77	0,680	0,63	0,613
	24 – 25 years	0,41	0,644	0,43	0,423	0,42	0,524
	Over 25 years	0,44	0,526	0,43	0,493	0,44	0,492
	Total	0,45	0,466	0,63	0,560	0,54	0,519
Selection	21 years or younger	1,17	1,000	1,92	1,281	1,47	1,141
	22- 23 years	0,79	0,809	1,40	1,724	1,20	1,501
	24 – 25 years	0,71	0,994	0,57	0,673	0,64	0,819
	Over 25 years	0,56	0,863	0,67	0,764	0,59	0,801
	Total	0,82	0,909	1,24	1,425	1,03	1,204
Team and Culture	21 years or younger	1,22	0,870	1,83	0,585	1,47	0,807
	22- 23 years	1,46	0,509	1,37	0,901	1,40	0,786
	24 – 25 years	0,89	1,039	0,79	0,509	0,84	0,788
	Over 25 years	0,84	0,667	1,58	1,041	1,05	0,805
	Total	1,10	0,798	1,35	0,828	1,23	0,816

SD = standard deviation

Based on the MANOVA analysis, there was no significant interaction between gender and age groups for the combined dependent variables $F(15,156) = 1.135$, $p = 0.330$, Pillai's $V = 0.295$). Similarly, no significant main effect was identified across the age groups $F(15,156) = 1.120$, $p = 0.343$, Pillai's $V = 0.292$) and gender for the combined dependent variables $F(5,50) = 0.437$, $p = 0.820$, Pillai's $V = 0.042$), all at a $p > 0.05$ (see Table 2). Because of this pattern, no further post-hoc tests were performed.

Table 2: Results of one-way ANOVAs on stress frequency

Sub-category	Age				Gender				Age*Gender			
	df	F	p	η^2	df	F	p	η^2	df	F	p	η^2
Coaching	3	1,239	0,305	0,064	1	1,116	0,295	0,020	3	0,117	0,950	0,006
Goals and Development	3	2,676	0,056	0,129	1	1,056	0,309	0,019	3	0,461	0,711	0,025
Logistics and Operations	3	0,359	0,783	0,020	1	0,648	0,424	0,012	3	0,788	0,506	0,042
Selection	3	1,746	0,169	0,088	1	1,004	0,321	0,018	3	0,440	0,725	0,024
Team and Culture	3	2,110	0,110	0,105	1	1,694	0,199	0,030	3	1,056	0,375	0,055

df = degrees of freedom, F = F-value, p = significance, η^2 = partial eta-squared

Stress Duration

Examining the descriptive statistics, an average of 1.14 ± 0.779 points ("a very short time") were calculated across all categories. Moreover, a maximum mean value of 2.75 ± 1.000 points (TC, among 21 years or younger females) was evident, reflecting a medium amount of time spent on this sub-dimension. But standard deviations of the mean assessments vary strongly. If the genders are compared, a higher mean value was recorded for the female participants, except for the 24-25 year olds in the subcategory LO (see Tab.3). Accordingly, this stressor sub-dimension was experienced for a longer time. In the comparison of the age groups, except for the GD category, the mean value of the 22-23 year olds was higher than those of the younger participants. There is no discernible trend when the results are broken down by gender (see Table 3).

Table 3: Descriptive statistics on stress duration

		Male		Female		All genders	
Sub-category	Age	Mean	SD	Mean	SD	Mean	SD
Coaching	21 years or younger	1,00	1,199	1,92	1,158	1,37	1,232
	22 - 23 years	1,36	1,345	1,73	1,178	1,61	1,214
	24 - 25 years	0,64	0,945	0,71	1,286	0,68	1,085
	Over 25 years	0,63	0,876	0,67	1,155	0,64	0,897
	Total	0,90	1,091	1,44	1,250	1,17	1,194
Goals and Development	21 years or younger	1,31	0,848	2,17	0,650	1,66	0,865
	22- 23 years	1,45	0,756	1,54	0,818	1,52	0,782
	24 – 25 years	0,98	1,120	1,00	0,430	0,99	0,815
	Over 25 years	1,33	0,955	1,72	0,788	1,44	0,892
	Total	1,27	0,892	1,56	0,781	1,42	0,845
Logistics and Operations	21 years or younger	0,54	0,428	0,74	0,611	0,62	0,498
	22- 23 years	0,40	0,292	1,10	1,032	0,87	0,920

	24 – 25 years	0,48	0,761	0,46	0,423	0,47	0,591
	Over 25 years	0,56	0,974	0,67	0,619	0,59	0,862
	Total	0,50	0,648	0,84	0,832	0,67	0,755
Selection	21 years or younger	0,89	0,868	2,33	1,633	1,47	1,382
	22- 23 years	1,00	0,913	1,90	1,824	1,61	1,625
	24 – 25 years	1,00	1,414	1,21	1,439	1,11	1,375
	Over 25 years	0,69	1,100	1,17	2,021	0,82	1,309
	Total	0,89	1,030	1,76	1,692	1,32	1,457
Team and Culture	21 years or younger	1,11	1,099	2,75	1,000	1,77	1,318
	22- 23 years	2,14	1,322	2,65	1,535	2,49	1,459
	24 – 25 years	1,11	1,376	1,11	,748	1,11	1,064
	Over 25 years	0,59	0,581	1,83	1,258	0,93	0,943
	Total	1,21	1,199	2,24	1,391	1,73	1,389

SD = standard deviation

Using MANOVA, no significant interaction was found between gender and age group for the combined dependent variables $F(15,156) = 0.840$, $p = 0.632$, Pillai's $V = 0.224$). In contrast, significant main effect for age group was identified. Specifically, a significant difference between age groups was identified for the combined dependent variables $F(15,156) = 2.020$, $p = 0.017$, partial $\eta^2 = 0.163$, Pillai's $V = 0.488$). The effect size can be considered large. To determine more precisely in which subcategories the group difference is present, single factor ANOVAs were performed. The results showed a significant difference between the age groups in the subcategory TC $F(3,54) = 3.841$, $p = 0.015$, partial $\eta^2 = 0.176$), with a large effect size (see Table 4). The follow-up Bonferroni post hoc tests showed significant differences exist between the age groups "22-23 years" and "24-25 years" ($p = 0.012$, $M_{Diff} = 1.38$, $d = 1.045$) and the age groups "22-23 years" and "over 25 years" ($p = 0.005$, $M_{Diff} = 1.56$, $d = 1.184$). In this case, the 22-23 year olds experienced the stressors of the TC subcategory longer than the older participants. There were no significant differences between the 21-year-old or younger participants and the other age groups, and between the 24-25-year-old and over 25-year-old ($p > 0.05$).

In addition, for this subcategory (TC), a significant difference with medium effect size across gender was also observed; $F(1, 54) = 6.416$, $p = 0.014$, partial $\eta^2 = 0.106$) (Tab. 4). Based on the mean values, female participants estimated on average the duration as longer than the male participants ($M_{Diff} = 0.846$).

Table 4: Results of one-way ANOVAs on stress duration

Sub-category	Age				Gender				Age*Gender			
	df	F	p	η^2	df	F	p	η^2	df	F	p	η^2
"Coaching"	3	2,422	0,076	0,119	1	1,207	0,277	0,022	3	0,406	0,749	0,022
"Goals and Development"	3	2,094	0,112	0,104	1	2,187	0,145	0,039	3	0,772	0,515	0,041
"Logistics and Operations"	3	0,370	0,775	0,020	1	1,406	0,241	0,025	3	0,719	0,545	0,038
"Selection"	3	0,567	0,639	0,031	1	3,617	0,063	0,063	3	0,477	0,699	0,026
"Team and Culture"	3	3,841	0,015*	0,176	1	6,416	0,014*	0,106	3	1,287	0,288	0,067

df = degrees of freedom, * = significant, F = F-value, p = significance, η^2 = partial eta-squared

Stress Intensity

The mean values and deviations of the subcategories varied greatly in the assessments of stress intensity. The least intensive subcategory is LO (mean ≤ 0.68 points). The maximum value is 2.92 ± 1.594 points for the subcategory S of the female participants aged 21 or younger (see Table 5), indicating a moderate intensity. The average of all categories showed 1.21 ± 0.809 points, a “very low” intensity. Except for four categories, a difference between the genders was identified (see Table 5). Specifically, female student-athletes experienced the organizational stressors as more intense than the male participants. No uniform trend was discernible between the age groups (see Table 5).

Table 5: Descriptive statistics on stress intensity

Sub-category	Age	Male		Female		All genders	
		Mean	SD	Mean	SD	Mean	SD
Coaching	21 years or younger	0,89	0,782	1,75	1,037	1,23	0,961
	22 - 23 years	1,43	1,592	1,73	1,132	1,64	1,265
	24 - 25 years	0,71	0,994	0,86	1,249	0,79	1,087
	Over 25 years	0,56	0,729	1,00	1,732	0,68	1,007
	Total	0,89	1,047	1,47	1,204	1,18	1,156
Goals and Development	21 years or younger	1,41	0,917	2,08	0,815	1,68	0,914
	22- 23 years	1,45	0,916	1,72	0,883	1,64	0,881
	24 – 25 years	1,12	0,989	1,12	0,525	1,12	0,761
	Over 25 years	1,19	0,875	1,78	0,918	1,35	0,883
	Total	1,30	0,887	1,66	0,833	1,48	0,873
Logistics and Operations	21 years or younger	0,68	0,696	0,73	0,604	0,70	0,639
	22- 23 years	0,45	0,461	1,07	0,934	0,87	0,854
	24 – 25 years	0,64	0,961	0,39	0,301	0,52	0,697
	Over 25 years	0,53	0,956	1,04	1,063	0,67	0,961
	Total	0,58	0,761	0,85	0,800	0,71	0,786
Selection	21 years or younger	1,33	1,199	2,92	1,594	1,97	1,541
	22- 23 years	1,21	1,035	2,00	1,773	1,75	1,594
	24 – 25 years	1,21	1,577	0,79	0,951	1,00	1,271
	Over 25 years	0,50	0,756	1,33	2,309	0,73	1,272
	Total	1,06	1,160	1,84	1,719	1,45	1,506
Team and Culture	21 years or younger	1,28	1,208	2,63	0,703	1,82	1,215
	22- 23 years	2,21	0,783	2,45	1,268	2,38	1,123
	24 – 25 years	1,18	1,441	1,11	1,009	1,14	1,195
	Over 25 years	0,88	0,824	2,33	1,665	1,27	1,222
	Total	1,36	1,153	2,17	1,252	1,77	1,261

SD = standard deviation

The results of the MANOVA showed no significant interaction between gender and age for the combined dependent variables $F(15,156) = 0.839$, $p = 0.633$, Pillai's $V = 0.224$). However, significant main effects were realized for gender; TC ($F(1,54) = 5.588$, $p = 0.022$, partial $\eta^2 =$

0.094) and age; $F(3, 54) = 3.142$, $p = 0.033$, partial $\eta^2 = 0.149$) under the TC sub-dimension, with moderate-high effect sizes respectively (see Table 6). The follow-up corrected t showed that female participants perceived the TC related stressors as more intense than male participants ($MDiff = 0.81$). Similarly, the follow-up ANOVAs revealed a mean difference across the age groups "22-23 years" and "24-25 years" ($p = 0.023$, $MDiff = 1.23$, $d = 1.070$). Specifically, the 22-23-year olds student-athletes reported stressors under the TC subcategory as more intense than their 24-25-year old counterparts. The other age group comparisons showed no significant differences ($p > 0.05$).

Table 6: Results of one-factorial ANOVAs on stress intensity

Sub-category	Age				Gender				Age*Gender			
	df	F	p	η^2	df	F	p	η^2	df	F	p	η^2
Coaching	3	1,817	0,155	0,092	1	1,955	0,168	0,035	3	0,272	0,846	0,015
Goals and Development	3	1,351	0,268	0,070	1	2,550	0,116	0,045	3	0,429	0,733	0,023
Logistics and Operations	3	0,310	0,818	0,017	1	1,116	0,296	0,020	3	0,966	0,415	0,051
Selection	3	2,018	0,122	0,101	1	3,077	0,085	0,054	3	1,205	0,317	0,063
Team and Culture	3	3,142	0,033*	0,149	1	5,588	0,022*	0,094	3	1,512	0,222	0,077

* = significant, F = F-value, p = significance, η^2 = partial eta-squared

DISCUSSION

The study examined the frequency, duration and intensity dimensions of organizational stressors that affect elite student-athletes across gender and age. No gender or age differences were found in the frequency dimension of the organizational stressors encountered by the elite student-athletes as hypothesized. The results show that age and gender have no significant influence on the perception of frequency on organizational stressors. Accordingly, all elite student-athletes are affected by organizational stressors with the same frequency. Within the organizational stress literature, this finding contradicts the commonly held notion that women are generally more vulnerable to stressful situations than men [20,26,45]. Nevertheless, other stress researchers in the sport context have also identified no differences in frequency, as well as duration and intensity of stressors [20,45]. These similarities of the stressor ratings correspond to Hammermeister and Burton [34]'s statement that men and women rated stressful situations similarly. The discrepancies and similarities in the current findings against previous results can mainly be attributable to contextual and cultural norms or the characteristics of the sample [45-46]. Obviously, culture varies from country to country and these differences can cut across all spheres of human life. This indicates that the context and culture of Ghana might vary from that of UK, Taiwan, China, Australia and Malaysia. For instance, within the context of Ghana, elite student - athletes operate under similar rules and regulations in sports and academics so there is a possibility that their teachers could be their coaches as well. Again, both genders are not treated differently. Hence, it is more likely that the frequency of organizational stressors cannot be controlled by the athletes. This assumption may further explain the finding that showed no significant difference between gender and age on the frequency of experiencing these organizational stressors.

Partly as hypothesized, elite student athletes' gender affected the intensity and duration of organizational stressors encountered. Significant differences were found in team and culture under duration and intensity dimensions of the organizational stressors experienced by the elite student-athletes. Specifically, females reported more intense and longer duration of issues related to team and culture than their male counterparts. This finding adds to previous literature on the influence of gender on the experience of organizational stressors on team-related issues [22,48]. For example, similar to previous studies, Nicholls et al. [22] found that females reported more team and communication stressors than males. Again, Anshel et al. [48] found that females reported more intense stressors linked with teammates and their coaches. This outcome is possible because, culture has been found to influence the motivation, emotions and cognition of people. Therefore, it is likely that within a collectivist culture like Ghana, social networking is considered paramount and individuals who find themselves in such groups or teams are likely to be affected either positively or negatively depending on the attitudes and behaviours of team members [49]. Marcus and Kitayama [49] further indicated that the values and norms of culture highly influence the individual's self-construal, construal of others, and how these two interdepend on each other. Again, Hofstede's [50] model of national cultures suggests that females in masculinity-oriented countries like Ghana depict women as more emotionally vulnerable than men; girls/women are supposed to show negative emotions like anxiety and dejection in the face of life adversity whereas men are regarded as tough and hardy, where expressing negative emotions are frowned upon and considered unacceptable [50]. Men are also expected to show assertiveness and be strong-willed than women. Hence, women are usually less likely to show toughness and/ or approach issues head-on during situations considered as stressful [50]. Consequently, male student-athletes are less likely to show intense worries on issues related to team culture and atmosphere than their female counterparts.

Further, some previous studies have also revealed that females and males encounter varied stressors in their working environment and report varied levels of stress, yet females generally reported higher degrees of stress than males [51-52]. To explain these similarities further, Jick et al. [53] in their developed model, which highlights the likelihood of gender or sex effects on stressors experienced, opined that women are more oriented socially and show emotional reactions which can lead them to encounter more social-related stressors than males [54]. Therefore, since, team-related issues are more social in nature, there is the possibility of these female athletes reporting more intense and longer duration of stressors than their male colleagues. Similarly, while males are socialized to adopt more planning, active and instrumental social support seeking measures to deal with stressful situations, females use more avoidance and disengagement as well as seek social support for emotional reasons to deal with stressful situations encountered [18,20,55]. Moreover, it is expected that teammates from varied cultural backgrounds could present different desirable or undesirable behaviours and attitudes like lateness to the training ground, and rivalry issues [2] which could be a potential source of stress to many athletes, especially females.

The maximum values were recorded in the sub-dimension team and culture for 21-year-old or younger female student-athletes. Therefore, these younger athletes are more affected by the stressors and experience the stressors longer and more intensively than the older athletes. This finding aligns with the current literature, which indicates that younger athletes are less able to cope with stressors and thus feel more stressed [56].

LIMITATIONS AND FUTURE DIRECTIONS

Some limitations have been identified in this present study. The use of the cross-sectional design and the collection of data at one single point mean that this study has to be generalized with caution. Again, the sample size used for this study was small and that could have undermined the external and internal validity of the study. Therefore, the findings of this study should be interpreted cautiously. Furthermore, the age groups were divided into very narrow age ranges. In some cases, two cohorts were combined. As a result, the behaviour and attitudes of the age groups formed were possibly too similar. Differences over larger age ranges could thus rarely be recorded. This can be enhanced further by categorising age ranges more broadly. In addition, sport-related factors such as experience, performance level and training volume were not considered. Depending on how intensely a sport is played, a different effect of stressors could occur. The OSI-SP does not account for the impact of academic-related stressors on the performance and well-being of elite student-athletes. It is therefore possible that athletes who are students could experience other personal and academic-related stressors which were not considered in the OSI-SP. Thus, these athletes might be experiencing stressors on frequency, intensity and duration dimensions that have not been reported. Future research could therefore investigate the connection between non-athletic stressors in the relationship between other psychological factors like self-confidence, motivation, academic resilience on well-being of student-athletes.

CONCLUSIONS

Organizational stressors encountered by elite student-athletes in their working environment were mainly team-and culture-related issues, with younger female athletes experiencing this organizational stressor more intensely and over a longer duration than their male peers. Therefore, sport coaches, sport psychologists and directors of sports working with these athletes in the universities could integrate or design stress management interventions. These strategies should be designed towards helping athletes develop appropriate team dynamics (e.g., enhance good communication skills, promote cultural diversity, and strengthen interpersonal relationships and values enhancement programmes) to promote team culture, climate and well-being, especially for younger female student-athletes.

DECLARATIONS

Data availability statement: The raw data supporting this article will be made available by the corresponding author upon request.

Ethics statement: The study was reviewed and approved by Institutional Review Board of the University of Cape Coast (IRB-UCC) with reference number UCCIRB/CES/2020/42. All participants provided their written informed consent to participate in this study.

Author contributions: MSS conceived the idea. MSS performed the analysis. MSS prepared the initial draft of the manuscript and thoroughly read the final version of the manuscript.

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