



Is a pandemic as good as a rest? Comparing athlete burnout and stress before and after the suspension of organised team sport due to Covid-19 restrictions, and investigating the impact of athletes' responses to this period

Siobhán Woods^{*}, Simon Dunne, Pamela Gallagher, Sibéal Harney

School of Psychology, Dublin City University, Ireland

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ABSTRACT

The COVID-19 pandemic resulted in social-distancing measures and the suspension of organised sport globally, and has been shown to have negatively impacted mental health. However, athletes may have experienced reprieve from sport demands, which have previously been linked with maladaptive responses such as burnout and stress. The aims of this study were (1) compare levels of burnout and stress reported by Gaelic games athletes pre- and post-COVID-19 suspension period, (2) explore how athletes utilised and perceived this period and the return to sport, and (3) examine the implications of this for burnout. Participants completed an online questionnaire, which included the *athlete burnout questionnaire*, *perceived stress scale*, *sport emotion questionnaire*, demographic questions, weekly *training hours*, and *other hours* for sport (e.g. travel) before Covid-19 (BC-19) and after the Covid-19-induced suspension (AC-19_S). Questions relating to how athletes utilised (e.g. training focus) and perceived (positive/negative impact) the period were included AC-19_S. Data was compared across time-points and we explored predictors of burnout AC-19_S. Ninety-two athletes completed the questionnaire at both time-points. No significant differences in *burnout* or *stress* were identified, suggesting the suspension period did not significantly impact these variables. *Burnout* BC-19, *stress* AC-19_S, *unpleasant emotions* about returning to sport and using the period to *rest/recover* positively predicted burnout AC-19_S. Reduction in *other hours* across time-points and *pleasant emotions* about returning predicted lower burnout. Results suggest an athletes' response to a suspension period and subsequent return to sport can impact feelings of burnout, and may have implications for future unanticipated change events.

A novel strain of coronavirus (COVID-19) associated with pneumonia-like symptoms emerged in the Wuhan province of China in late 2019 (World Health Organisation, 2020). The virus spread around the world and a pandemic was declared by the World Health Organization (World Health Organisation, 2020). With the aim suppressing the further spread of COVID-19, governments across the globe implemented a range of conditions and restrictions on the lives of citizens (Hale et al., 2020). These restrictions also resulted in the suspension, cancellation or deferral of sporting events globally. In Ireland, the organising bodies for the national sports of Gaelic games¹ announced the closure of facilities

and a suspension of all activity in March 2020 (Gaelic Athletic Association, 2020). Players were eventually allowed to return to small-group training in June 2020 followed by the resumption of games in July 2020. However, restrictions remained in place, with weekly training sessions limited and teams prohibited from gathering indoors (GAA, 2020b).

As such, while there is no doubt that the pandemic disrupted every aspect of normal life, in the context of sport it can be viewed as a transition period or “change-event” that disrupts the quality and intensity of athletic engagement (Samuel et al., 2020). This

^{*} Corresponding author. School of Psychology, Dublin City University, Glasnevin, Dublin 9, Ireland.

E-mail address: siobhan.woods24@mail.dcu.ie (S. Woods).

¹ Gaelic games are team sports native to Ireland. They are played and followed by fans in large numbers across Ireland and the rest of the world, and are similar to other field sports in-terms of physical demands (e.g. Balk & deJonge, 2021). Men's and women's Gaelic football involves passing a soccer-style ball with the hand or foot. Hurling and camogie (women's hurling) require players to hit a small ball with a wooden stick, or hurl. Interested readers may wish to visit the Gaelic Athletic Association (GAA) website for more information (<https://www.gaa.ie/the-gaa/about-the-gaa/>).

conceptualisation is supported by recent a finding that almost 70% of American collegiate athletes feel “a lot has changed” since the onset of the pandemic (Garver et al., 2021). Supporting athletes through change-events has been identified as a key aspect of a sport psychologist’s role (e.g. Samuel, 2013), and understanding how change-events impact athletes can facilitate this work (Samuel & Tenenbaum, 2011a). As such, the pandemic-induced suspension of the season provides us with a unique opportunity to explore athletes’ experiences of a “longitudinal, multifaceted, unpredicted, non-controlled change-event” (Samuel et al., 2020, p.3).

In-line with existing research highlighting the negative impact of unpredicted and uncontrolled change-events, such as injury (Samuel & Tenenbaum, 2011a), emerging research highlights the negative implications of the COVID-19 pandemic and associated restrictions on mental health outcomes. To-date, researchers have identified increased levels of anxiety, depression and stress in the general population (Xiong et al., 2020), while negative mood (Aghababa et al., 2021) and significant increases in both perceived stress and dysfunctional psychobiosocial states (Fronso et al., 2020) have been identified in athletes. However, the enforced suspension of organised sport may also have provided athletes with a break from the demands of sport. For example, elite Irish Gaelic games players, 40% of whom report no time-off in an average season (Kelly et al., 2018), experienced an unprecedented 3-month suspension of organised sport. Detachment from sport, whereby athletes get a physical, cognitive and emotional break from sport demands, can act as a buffer against the negative effects of these demands (Balk et al., 2017). Furthermore, Balk and deJonge (2021) identified a paradoxical relationship between sport demands and detachment, whereby athletes who report higher daily sport demands, and therefore are most in need of rest, tend to report lower daily detachment from sport. Our understanding of whether players treated the suspension period as a break or continued to train in some capacity remains limited and requires further exploration. However, it is possible that a reduction in sport demands associated with the suspension period may have been beneficial in counteracting maladaptive responses to sport, such as athlete burnout. While, to our knowledge, the impact of change-events on burnout has yet to be explored, existing research indicates that unanticipated change-events that may commonly be viewed as negative, such as injury, can also be associated with positive psychological outcomes for athletes (Wadey et al., 2011).

Athlete burnout is a psychological syndrome characterised by feelings of physical and emotional exhaustion (PEE), a reduced sense of accomplishment (RSA) in sport, and sport devaluation (SD) (Raedeke & Smith, 2001). Negative consequences of athlete burnout include reduced performance levels, dropout from sport, physical illness and depression (De Francisco et al., 2016; Raedeke et al., 2002). Athlete burnout has been closely linked to sport demands and stress, both in existing research (Lin et al., 2021) and theoretically. For example, Smith’s (1986) cognitive-affective model posits that burnout occurs as a result of prolonged periods of high sport-related stress, where-in athletes feel ill-equipped to face demands associated with sport participation, while Gustafsson et al. (2011) also specify both stress and training demands as antecedents of athlete burnout in their integrated model. As such, while it is possible that feelings of burnout may have been impacted by increased stress levels associated with the COVID-19 change-event (e.g. Fronso et al., 2020), athletes may also have experienced benefits associated with a reduction in training demands and possible increased detachment as a result of the enforced break from organised sport.

Furthermore, based on their research exploring change-events (e.g. Samuel & Tenenbaum, 2011a), Samuel et al. (2020) argue that the impact of the COVID-19 change-event can vary depending on how athletes appraise and respond to it. Cognitive appraisal has also been shown to impact feelings of athlete burnout (Gomes et al., 2017). As such, a negative appraisal of the suspension period may involve focusing on lost opportunities to compete (Samuel et al., 2020), and may be

associated with increased feelings of burnout. In contrast, a positive appraisal could involve focusing on the opportunity to improve skills or optimise rest and recovery (Samuel et al., 2020), which may help to counteract feelings burnout. Similarly, athletes’ appraisal of the return to sport may differ; while many athletes likely welcomed the return, others may have experienced concerns due to the potential increased injury risk (Mohr et al., 2020) or the risk related to contracting the virus (e.g. Fogarty, 2020). In addition, due to the unprecedented nature of the suspension period, further exploration is needed to understand how athletes viewed and utilised this period from a training and physical activity perspective. Understanding athletes’ potential positive and negative appraisals of this period and their responses to it may provide a more nuanced insight into the impact of an unanticipated change-event on feelings of burnout.

Overall, our understanding of the impact of this unanticipated change-event, namely the pandemic-induced suspension of sport, on maladaptive responses associated with sport participation remains limited. Furthermore, we currently have a limited understanding of how athletes appraised this change-event, how it affected training demands, and whether these factors impacted the extent to which athletes’ experienced an adaptive or maladaptive response, in the context of burnout. Such insight may be used to inform next steps as sport resumes, as well as responses to future unanticipated change-events in sport.

As such, we aimed to explore the data using three groups of research questions;

1. The impact of the change-event on burnout and associated variables: We examined whether levels of burnout, levels of stress, and the temporal demands of sport reported by Gaelic games players differed following the suspension period compared to the same time in the 2019 season. We hypothesised that levels of stress would increase, in-line with existing research (Fronso et al., 2020), and temporal demands of sport would decrease as a result of restrictions associated with the pandemic. As, to our knowledge, this is the first study to examine athlete burnout during the pandemic, this research question was exploratory.
2. Athletes’ appraisals of the change-event: We explored athletes’ positive and negative perceptions of the suspension period, how they utilised this period, and their feelings about the return to sport, for the first time. These questions were exploratory, with no specific hypotheses, and centred around improving our understanding of how athletes appraised this change-event.
3. Factors impacting feelings of burnout after the change-event: We aimed to understand how any changes in temporal demands and athletes’ appraisals of the suspension period may have impacted feelings of burnout. We hypothesised that reduced on and off-field time demands, a positive perception of the suspension period, viewing the suspension period as an opportunity to rest, and positive emotions about the return to sport would predict lower levels of burnout following the change-event. As research suggests burnout is impacted both by stress (Lin et al., 2021) and previous levels of burnout (e.g. Lonsdale & Hodge, 2011), we controlled for post-suspension stress and pre-pandemic burnout scores.

1. Method

1.1. Design

The data reported here-in represents a subset from a longitudinal study with six data collection time-points over a 20-month period. The study received ethical approval from the University Research Ethics Committee. As the specific aims and analytic approach associated with this paper emerged in response to the COVID-19 outbreak, we focus on the two most relevant data points; June–August 2019, and July–August 2020. June–August 2019 (“Before COVID-19”; BC-19) was a regular “in-

season” period for Gaelic games athletes. In contrast, in July–August 2020 Gaelic games athletes were returning to a restricted training and games schedule following a 3-month suspension of all organised activity after the onset of the COVID-19 outbreak (“After the COVID-19-induced Suspension of sport; “AC-19 S”).

1.2. Participants and recruitment²

Any individual aged 18 or over at the time of initial recruitment (March 2019), and playing Gaelic games was eligible for participation. We employed a population-based sampling strategy, with the aim of maximising access to Gaelic games players. This included targeted recruitment messages and requests to share information via social media and emails sent to clubs and administrative boards, who can be viewed as gatekeepers for athletes. Where possible, the researcher also visited teams for face-to-face recruitment. Informed consent was obtained from all participants. Participants were asked to indicate if they would like to be contacted in relation to future phases of the project and, if so to provide an email address through which this contact would be made.

1.3. Measures

1.3.1. The athlete burnout questionnaire (ABQ)

The 15-item ABQ (Raedeke & Smith, 2001) was used to measure the three dimensions of athlete burnout at both the BC-19 and AC-19 S time-points. The PEE, RSA and SD subscales have been shown to have good internal consistency, with Cronbach’s alpha scores of 0.91, 0.85 and 0.90 respectively in the validation study (Raedeke & Smith, 2001). Responses are measured on a Likert scale, from 1 (*almost never*) – 5 (*almost always*). Scores were averaged, such that they range from a minimum score of one, to a maximum of five.

1.3.2. The perceived stress scale (PSS-10)

The 10-item PSS-10 (Cohen et al., 1994) was used to assess perceived daily-life stress at both the BC-19 and AC-19 S time-points. Questions are answered on a Likert scale, from 0 (*never*) – 4 (*very often*). Total scores of 0–13 are indicative of low stress, 14–26 indicates moderate stress, and 27–40 suggests high levels of perceived stress (Cohen et al., 1994).

1.3.3. Sport-specific temporal demands

Average weekly training hours have previously been employed as a measure of temporal demands in the athlete burnout literature (e.g. Cresswell & Eklund, 2006b). In addition, when assessing the demands on Gaelic games athletes, Kelly et al. (2018) identified temporal demands outside physical training (e.g. travel time and team meetings) as having a substantial burden on players. As such, participants were asked to outline the average number of hours they spend training for Gaelic games each week (*training hours*), and the average number of hours each week they dedicate to Gaelic games outside of physical training (*other hours*) at both the BC-19 and the AC-19 S time-points.

1.3.4. Perceived impact and utilisation of the lockdown period

A number of questions were included in the online questionnaire at the AC-19 S timepoint with the aim of understanding how athletes utilised and perceived the suspension period and the initial resumption of sport. As our understanding of how athletes perceived this unprecedented period remains limited, we felt a combination of closed and open-ended questions would be most appropriate (Brace, 2013), as outlined below.

Perceived impact of the suspension of training and games. Participants were asked to indicate the extent to which they felt the suspension period had a positive and negative impact on their life, in

response to the following questions; “to what extent has the suspension of training and games had a negative impact on your life?” and “to what extent has the suspension of training and games had a positive impact on your life?”. Responses were given on a Likert scale, from 1 (*not at all*) – 5 (*a great extent*). These questions are based on similar questions from the change-event literature work (e.g. “how positive or negative were the outcomes of this event”; Samuel & Tenenbaum, 2011a, p.396).

Open-ended questions. Two open-ended questions were included to gain a deeper insight (Brace, 2013) into athletes’ perceptions of the negative and positive impact of the suspension of the season; after the Likert-scale questions described above, participants were asked to “please provide a short explanation for your response”. No character restrictions were applied.

How the lockdown period was utilised. Participants were asked a series of questions relating to how they utilised the lockdown period with respect to training/physical activity, including “to what extent did you view the suspension of training/games as an opportunity to rest and recover away from Gaelic games?”, “to what extent did you view the suspension of training/games as an opportunity to try different types of physical activity?”, and “to what extent did you view the suspension of training/games as an opportunity to work on specific skills for Gaelic games?”. Responses were rated on a Likert scale from 1 (*not at all*) – 5 (*a great extent*). The extent to which athletes perceived a change in their level of physical activity during the lockdown period compared to the same time in a regular season was assessed using the following question “How did your amount of weekly physical activity while training/games suspended compare to the same period in a regular season?”, with responses measured on a Likert scale from 1 (*much less*) – 5 (*much more*). We also asked about the degree to which athletes followed a specific training plan, including “to what extent did you follow a specific training plan during the suspension of training/games?” and “to what extent was your training prescribed by your Gaelic games coach?”. Responses to both question were given on a Likert scale from 1 (*not at all*) – 5 (*to a great extent*).

The questions included were framed with the aim of capturing whether athletes used the period to rest, or whether they continued to focus on and train for Gaelic games. Furthermore, due to restrictions in access to facilities required for sport-specific training (e.g. Gaelic games pitches), we also felt it was important to explore whether athletes engaged in other forms of physical activity.

1.3.5. The sport emotion questionnaire (SEQ)

The SEQ (Jones et al., 2005) was used to assess athletes’ emotions about the return to sport. Athletes rated the degree to which they were experiencing 22 specific feelings, on a Likert scale from 0 (*not at all*) – 4 (*strongly*). These feelings are representative of five different emotions, namely *anxiety*, *dejection*, *anger*, *excitement* and *happiness*, which can be further divided into the higher-order categories of *unpleasant emotions* (*anxiety*, *dejection*, *anger*) and *pleasant emotions* (*excitement*, *happiness*). Average scores on the higher order subscales of *pleasant emotions* and *unpleasant emotions* were calculated (Jones et al., 2005), such that participants could score a maximum of 4 and a minimum of 0. Jones et al. (2005) found strong support for the face validity of the SEQ as a measure of emotions prior to competition, while factor analysis indicated item loadings ranging from 0.60 to 0.82 for items on their respective subscales. Arnold and Fletcher (2015) also support the validity and reliability of the SEQ and suggest that the hierarchical structure described may be appropriate in situations where parsimony is important. This was the case in the current analysis, as sample size was relatively small and we aimed to achieve the recommended participant-predictor ratio of 10:1 for multiple regression (VanVoorhis & Morgan, 2007).

With permission from the author, the instructions for the scale were changed such that the original sentence “indicate on the scale next to each item how you feel right now, at this moment, in relation to the upcoming competition”, read “indicate on the scale next to each item how you feel right now, at this moment, in relation to the return to competition following the suspension of training and games due to the COVID-19 pandemic”. As such,

² The information in this section relates to a larger study from which the data for this analysis was drawn.

the measure remained an assessment of pre-competition emotions, in-line with its intended and validated use (Jones et al., 2005). Reliability of the two higher order scales was assessed using data from the 104 participants who completed the questionnaire. Cronbach's alpha levels 0.92 and 0.95 for the *unpleasant* and *pleasant* subscales respectively indicate reliability.

The above measures were combined in an online questionnaire, which also included questions on gender, age, the sport the individual was involved in, and the team(s) the individual was on.

1.4. Procedure

Participants received a link to the questionnaire via the email address they provided, and were first required to complete an online consent form. Those who met the necessary criteria were then directed through to the questionnaire, which consisted of the measures described above. The SEQ and questions relating specifically to COVID-19 appeared before the ABQ at the AC-19 S time-point. The BC-19 and AC-19 S questionnaires took approximately 15 and 20 min to complete respectively. Three reminder emails were also sent across each of the data collection window.

1.5. Data analysis

Only participants who completed the questionnaire both BC-19 and AC-19 S and continued to participate in Gaelic games AC-19 S were eligible for inclusion in the final analyses described below. As the COVID-19 outbreak was an unanticipated variable impacting an existing longitudinal study, the inferential analyses described are, by necessity, post-hoc, and therefore a priori power analyses were not conducted. Confidence intervals are reported for parametric tests, and we ensured that the sample to predictor ratio was in-line with the recommendation of 10:1 for multiple regression (VanVoorhis & Morgan, 2007).

1.5.1. Descriptive statistics

Mean scores and standard deviations of the variables of interest were calculated for both timepoints, as were the bivariate correlations between variables.

1.5.2. Comparing data before and after COVID-19

Athlete Burnout. As preliminary analyses indicated that data from the SD and PEE subscales did not meet the assumption of normality, it was not appropriate to conduct a RM MANOVA as originally planned. As such, in-line with other burnout studies that have encountered similar issues (e.g. Aktaş et al., 2021), we employed a combination of univariate non-parametric and parametric tests; Wilcoxon Signed-Ranks tests were used to compare SD and PEE across the two time-points, and a paired sample *t*-test was used to compare scores on the RSA dimension.

Perceived Stress. A paired sample *t*-test was used to compare participant's mean scores on the PSS-10 BC-19 and AC-19 S.

Training demands. Preliminary analyses revealed that the data violated the assumptions of a *t*-test, namely normality and an absence of outliers. As such, the non-parametric Wilcoxon Signed-Ranks test was employed to compare mean scores on these variables across BC-19 and AC-19 S.

1.5.3. Hierarchical multiple regression analysis

A hierarchical multiple regression (HMR) was used to identify predictors of burnout AC-19 S. We ran three HMR analyses, one for each of the dimensions of burnout. In order to partial out the impact of burnout BC-19 and *perceived stress*, which has been strongly associated with burnout (Lin et al., 2021), the burnout dimension score BC-19 and PSS-10 score AC-19 S were included in step 1 in each HMR. The following variables were included at step 2; (1) perceived negative impact of the suspension period, (2) perceived positive impact of the suspension period, (3) extent to which the period was viewed as an

opportunity to rest/recover from sport, (4) pleasant emotions about the return to sport, (5) unpleasant emotions about the return to sport, and the difference in weekly sport-specific (6) *training hours* and (7) *other hours* reported AC-19 S compared to BC-19.

Additional variables assessed (extent to which athletes followed a training plan, tried different physical activities, focused on sport-specific skills, and levels of physical activity differed compared to the regular season) were excluded from the multiple regression with the aim of achieving a parsimonious model; we felt, theoretically, data relating to athletes' appraisal of the period, rest and training demands was accurately captured by the variables listed in block 2. Focusing on these variables also allowed us to achieve an appropriate sample to predictor ratio of 10:1, as recommended for multiple regression (VanVoorhis & Morgan, 2007).

1.5.4. Content analysis of open-ended responses

All participants responded to the open-ended questions relating to the perceived positive and negative impact of the suspension of the season. Responses were coded using content analysis, which allowed us to make inferences about textual data and to quantify this data (Downe-Wambolt, 1992). Responses were transferred to an Excel file, and were then reviewed independently by two authors (SW and SH). Following the steps outlined by Bengtsson (2016), both reviewers familiarised themselves with the data, and then used deductive coding to label each response (*decontextualization*; Bengtsson, 2016). Where participants gave multi-faceted answers, different aspects of the response could be coded separately. Codes were then reviewed alongside the raw data (*recontextualization*; Bengtsson, 2016). Both researchers independently conducted *categorisation* of data, grouping codes together based on patterns of meaning across the codes (Bengtsson, 2016). The agreement between the two reviewers on coding and associated categories was assessed using Cohen's Kappa (Cohen, 1960). The reviewers met to discuss any disagreements, and all final decisions were agreed by both. Appropriate quotes were identified as exemplars of each category and the instances of each were counted for the purpose of descriptive data (Bengtsson, 2016).

2. Results

2.1. Descriptive statistics

One hundred and seventy-six participants completed the survey BC-19, and 103 of these athletes went on to complete the questionnaire at the AC-19 S timepoint (male $N = 44$, female $N = 59$). However, eleven participants (male $N = 5$, female $N = 6$) indicated that they were no longer playing Gaelic games AC-19 S, and thus were excluded from the final analyses. As such, 92 participants (male $N = 39$, female $N = 53$; Age AC-19 S = 19–56, $M = 27.05$, $SD = 7.56$) were retained for the subsequent analyses. At the BC-19 timepoint 27.2% ($N = 25$) of participants were playing at the elite level of Gaelic games. 31.5% ($N = 29$) participants were playing at the elite level at the AC-19 S timepoint.

Mean scores and standard deviations of scores are outlined in Table 1. A breakdown of participants' responses to questions about their experience of the suspension period are outlined in Table 2; no one

Table 1

Means and standard deviations of variables assessed across time-points.

Variable	Before COVID-19		After COVID-19 Suspension	
	M	SD	M	SD
PEE	2.23	0.68	2.10	0.81
RSA	2.62	0.81	2.72	0.78
SD	2.11	0.88	2.23	0.94
PSS	17.73	6.93	17.14	7.82
Training Hours	5.74	2.95	5.36	3.25
Other Hours	3.79	3.27	1.92	1.86

Table 2
Breakdown of responses about the perception and utilisation of the lockdown period.

Question	not at all	slightly	moderately	considerably	greatly	<i>M</i>	<i>SD</i>
Negative impact of suspension	5.4%	23.9%	22.8%	27.2%	20.7%	3.34	1.21
Positive impact of suspension	14.1%	26.1%	26.1%	21.7%	12.0%	2.91	1.24
Chance to rest/recover	15.5%	21.6%	24.7%	23.7%	14.4%	3.04	1.26
Chance to try different physical activities	12.2%	21.4%	24.5%	20.4%	21.4%	3.20	1.28
Chance to work on GAA skills	18.6%	19.6%	27.8%	17.5%	16.5%	3.02	1.31
Followed specific training plan	18.4%	22.4%	21.4%	19.4%	18.4%	3.00	1.37
Plan prescribed by coach	23.5%	22.4%	23.5%	12.2%	18.4%	2.86	1.40
How did your physical activity compare to same time in a regular season?	Much less 28.9%	somewhat less 24.7%	about the same 23.7%	somewhat more 18.6%	much more 4.1%	2.45	1.19

response emerged as most common, with mean values indicating that, on average, athletes viewed the period as both moderately positive and negative, and also used the time to *rest/recover*, *try new things*, *work on GAA skills* and *followed a specific training plan* all to a moderate extent. Athletes' emotional responses to the return to play AC-19 S were as follows; *pleasant emotions* $M = 2.58$, $SD = 1.01$, and *unpleasant emotions* $M = 0.74$, $SD = 0.69$. The correlation matrix is available as a supplementary file (see supplementary file 1).

3. Comparison of retained athletes v. study dropouts and sport leavers

Mann-Whitney U tests (with Bonferonni adjustment $0.05/6 = 0.008$) revealed no significant differences between athletes who completed the BC-19 time-point only ("study dropouts"; $n = 73$) and those who completed both the BC-19 and AC-19 S phases ("retained athletes"; $n = 103$) on PEE ($z = -0.14$, $p > 0.05$, $U = 3713$; study dropouts $Md = 2.0$, retained athletes $Md = 2.2$), RSA ($z = -0.88$, $p > 0.05$, $U = 3468.5$; study dropouts $Md = 2.6$, retained athletes $Md = 2.6$), SD ($z = -1.10$, $p > 0.05$, $U = 3394.5$; study dropouts $Md = 1.8$, retained athletes $Md = 2.0$), *perceived stress* ($z = -0.41$, $p > 0.05$, $U = 3573.5$; study dropouts $Md = 18.0$, retained athletes $Md = 17.0$), *training hours* ($z = -0.03$, $p > 0.05$, $U = 3697.5$, study dropouts $Md = 5.5$, retained athletes $Md = 5.0$), or *additional hours* ($z = -0.93$, $p > 0.05$, $U = 3607.5$; study dropouts $Md = 2.0$, retained athletes $Md = 2.0$).

We also used Mann-Whitney U tests (with Bonferonni adjustment $0.05/3 = 0.017$) to assess whether scores reported BC-19 by athletes who indicated they had dropped out of their sport at the AC-19 S timepoint ("sport leavers"; $n = 11$), and therefore were excluded from subsequent analyses, differed from those who stayed in sport ("sport maintainers"; $n = 93$). No significant differences between the groups were identified in PEE ($z = -0.32$, $p > 0.05$, $U = 481.5$, sport leavers $Md = 2.1$, sport maintainers $Md = 2.2$), RSA ($z = -1.34$, $p > 0.05$, $U = 381.5$, sport leavers $Md = 2.6$, sport maintainers $Md = 2.6$), SD ($z = -2.43$, $p > 0.05$, $U = 282.0$ sport leavers $Md = 2.0$, sport maintainers $Md = 2.0$), *perceived stress* ($z = -0.67$, $p > 0.05$, $U = 443.5$, sport leavers $Md = 18.0$, sport maintainers $Md = 17.0$), *training hours* ($z = -1.18$, $p > 0.05$, $U = 401.0$, sport leavers $Md = 5.5$, sport maintainers $Md = 6.0$), or *additional hours* ($z = -0.92$, $p > 0.05$, $U = 417.0$, sport leavers $Md = 2.0$, sport maintainers $Md = 3.0$).

3.1. Comparing data before and after COVID-19

As we were comparing the data across time-points on six different measures (PEE, RSA, SD, PSS-10, *training hours*, *other hours*), the Bonferonni adjustment was applied with the aim of reducing the risk of Type 1 error, such that $\alpha = 0.05/6 = 0.008$ for each analysis.

3.1.1. Athlete burnout

Wilcoxon signed ranks tests indicated there was a significant reduction in PEE scores from BC-19 ($Md = 2.2$) to AC-19 S ($Md = 2.0$) at the 0.05 alpha level ($z = -2.12$, $p < 0.05$, $r = 0.22$), but this result was not significant at the reduced alpha level ($p > 0.008$). A Wilcoxon signed

ranks test also revealed no significant changes SD from BC-19 ($Md = 2.0$) to AC-19 S ($Md = 2.2$, $z = -1.19$, $p > 0.008$). A paired sample *t*-test revealed no significant difference in RSA across time-points; $t(91) = -1.38$, $p > 0.008$, M difference = -0.09 , SD difference = 0.65 , 95% CI $[-0.23 - 0.04]$.

3.1.2. Perceived stress

Preliminary analyses indicated that the *perceived stress* data, as measured by the PSS-10, did not violate the assumptions of a paired-sample *t*-test. Results of the test did not indicate any significant differences in *perceived stress* from BC-19 ($M = 17.59$, $SD = 7.09$) to AC-19 S ($M = 17.14$, $SD = 7.82$); $t(91) = 0.703$, $p > 0.008$, M difference = 0.45 , SD difference = 6.08 , 95% CI $[-0.81, 1.70]$

3.1.3. Training hours and other hours

A Wilcoxon Signed-Ranks test revealed that *additional hours* were significantly reduced AC-19 S ($Md = 1.0$) compared to BC-19 ($Md = 3.0$); $z = -5.16$, $p < 0.001$, $r = 0.54$ (large effect size). No significant difference was evident in *training hours* across the two timepoints ($z = 1.15$, $p > 0.05$; BC-19 $Md = 6.0$, AC-19 S $Md = 5.0$).

3.2. Hierarchical multiple regression

Preliminary analyses confirmed that the data did not violate the assumptions of normality, linearity, multicollinearity, homoscedasticity or independence of residuals in each case. For each analysis, the maximum Mahalanobis distance (33.35–34.25) was above the critical chi-square for nine independent variables (27.88), indicating the presence of multivariate outliers. However, the data was retained as the maximum Cook's distance value in each case was well below the critical value of 1 (0.10–0.20) suggesting there were no influential cases impacting the models (Pallant, 2013). The results of each HMR, including beta values, standard error beta values, significance levels, R^2 and adjusted R^2 are outlined in Table 3. Inter-item correlations for the variables included in the HMR are provided in Supplementary Table 1.

3.2.1. Physical and emotional exhaustion

Step 1 of the model, which included *Stress AC-19 S* and *PEE BC-19*, was significant, accounting for 36.2% of variance in PEE scores AC-19 S [$R^2 = 0.36$, $F(2,87) = 24.66$, $p < 0.001$]. With the addition of Block 2 (*positive impact*, *negative impact*, *rest/recovery*, *pleasant emotions*, *unpleasant emotions*, *change in training hours* and *change in other hours*), the model accounted for 50.5% of variance in PEE scores AC-19 S [$R^2 = 0.51$, $F(9, 80) = 9.08$, $p < 0.001$]. Block 2 alone accounted for 14.4% of variance, which was significant [R^2 change = 0.144 , F change (7,80) = 3.32 , $p < 0.01$]. In the final model, *stress AC-19 S* ($t = 2.26$, $p < 0.05$; 95% CI 0.002, 0.04), *PEE BC-19* ($t = 3.65$, $p < 0.001$; 95% CI 0.18, 0.62), *unpleasant emotions* ($t = 2.24$, $p < 0.05$; 95% CI 0.03, 0.48) and *change in other hours* ($t = -2.18$, $p < 0.05$; 95% CI -0.09, -0.00) were significant contributors to the model.

3.2.2. Reduced sense of accomplishment

Step 1 of the model (*Stress AC-19 S* and *RSA BC-19*), was significant,

Table 3
Results of HMR Analyses (including; beta values, standard error beta values, significance levels, R² and adjusted R²).

Variable	Exhaustion HMR					Reduced Sense of Accomplishment HMR					Sport Devaluation HMR				
	B	SEB	β	R ²	ΔR ²	B	SEB	β	R ²	ΔR ²	B	SEB	β	R ²	ΔR ²
Step 1				0.362***	0.347				0.492***	0.480				0.470***	0.458
Step 2				0.505***	0.450				0.574***	0.527				0.615***	0.572
(Constant)	0.41	0.36				1.59	0.37				1.20	0.39			
Stress AC-19 S	0.02	0.01	0.20*			0.02	0.01	0.21*			0.01	0.01	0.08		
PEE BC-19	0.40	0.11	0.34***			/	/	/			/	/	/		
RSA BC-19	/	/	/			0.57	0.08	0.59***			/	/	/		
SD BC-19	/	/	/			/	/	/			0.62	0.08	0.58***		
Negative Impact	-0.07	0.06	-0.10			0.02	0.05	0.02			-0.05	0.06	-0.06		
Positive Impact	0.08	0.05	0.13			-0.06	0.05	-0.09			0.01	0.06	0.02		
Rest/recover	0.08	0.06	-0.10			-0.03	0.05	-0.05			0.11	0.06	0.15*		
Unpleasant emotions	0.08	0.04	0.22*			-0.03	0.03	-0.09			-0.01	0.04	-0.02		
Pleasant emotions	-0.02	0.04	-0.06			-0.10	0.03	-0.24**			-0.14	0.04	-0.29**		
Change in training hours	-0.00	0.02	-0.01			-0.01	0.02	-0.03			-0.01	0.02	-0.04		
Change in other hours	-0.05	0.02	-0.18*			-0.03	0.02	-0.12			-0.04	0.02	-0.13		

Key: *(p < 0.05); ** (p < 0.01); *** (p < 0.001); / = variable not included in this model

accounting for 49.2% of variance in RSA scores AC-19 S [$R^2 = 0.49$, $F(2,87) = 42.13$, $p < 0.001$]. With the addition of Block 2, the model accounted for 57.4% of variance in RSA scores AC-19 S [$R^2 = 0.57$, $F(9,80) = 12.00$]. Block 2 alone accounted for 8.2% of variance in RSA, which was significant [R^2 change = 0.082, F change (7,80) = 2.07, $p < 0.05$]. Stress AC-19 S ($t = 2.37$, $p < 0.05$; 95% CI 0.00, 0.04), RSA BC-19 ($t = 6.88$, $p < 0.001$; 95% CI 0.41, 0.73) and pleasant emotions about the return to play ($t = -2.77$, $p < 0.01$; 95% CI -0.33, -0.05) were significant contributors to the final model.

3.2.3. Sport devaluation

Step 1 of the model (Stress AC-19 S and SD BC-19), was significant, accounting for 47% of variance in SD scores AC-19 S [$R^2 = 0.47$, $F(2,87) = 38.62$, $p < 0.001$]. With the addition of Block 2, the model accounted

for 61.5% of variance in SD scores AC-19 S [$R^2 = 0.62$, $F(9,80) = 14.199$, $p < 0.001$]. Block 2 alone accounted for 14.5% of variance in SD, which was significant [R^2 change = 0.15, F change (7,80) = 4.30, $p < 0.001$]. SD BC-19 ($t = 7.79$, $p < 0.001$; 95% CI 0.46, 0.78), pleasant emotions ($t = -3.49$, $p < 0.005$; 95% CI -0.43, -0.12) and chance to rest/recover ($t = 2.01$, $p < 0.05$; 95% CI 0.00, 0.22) were significant contributors to the final model.

3.3. Content analysis of open-ended questions

The categories generated, sample quotes, number of responses under each category and Cohen's Kappa are outlined in Table 4. Responses under the category "more time for other things" were the most frequently cited positive outcome of the suspension of the season due to

Table 4
Content analysis of the open-ended responses relating to positive/negatives of the suspension of sport due to COVID-19.

Question	Categories Generated	Description	Quotes	Freq- uency	κ
Positive aspects of the suspension period	More time for other things	Reference to additional free time for other priorities, as a result of reduced sport commitments	"it allowed me to focus more on spending time with my family and completed online courses I've been looking to do for a long time"; "more time to do things I wanted to do but never had time to"	47	0.85
	Enjoyed the break/rest from the demands of Gaelic games	Reference to enjoying the break or rest from the demands/commitment associated with Gaelic games participation	"really enjoyed the down time and not having to constantly plan my life around training and games"; "forced me to slow down and take a break"	31	0.88
	Chance to reflect	Reference to opportunity for reflection/realisations made during the period	"Re-found [sic] why I like it"; "I realised that I'd be fine without playing sport and that I enjoy other forms of exercise"	17	0.89
	Chance to improve as a player	Reference to using the time to focus on improving as a Gaelic games player	"more free time to concentrate on other areas of game which require individual rather than collective participation"; "it turned out by having time to train myself and work on running I became fitter from the time off as I could pick and choose days I trained and maximised my recovery"	10	0.78
	No positives referenced	No reference to any positives/benefits of the period	"the suspension had no positive impact on my mental health and well-being"	15	1.00
Negative aspects of the suspension period	Missed the team environment	Reference to missing teammates and the group environment	"not having the usual group environment to train in was tough to deal with at times"; "missed group training sessions and seeing the team"	59	0.89
	Missed sport the routine	Reference to missing the sport itself and the associated routine/structure	"lack of routine and structure to my week"; "complete flip of lifestyle and routine"	32	0.81
	Negative impact on physical health and activity levels	Reference to the negative impact on physical health and activity levels	"fitness levels dropped dramatically"; "it lead to reduced physical activities"	32	0.84
	Absence of outlet negatively impacted mental health	Reference to negative impact on mental health without sport as an outlet	"my mental health wasn't as good without football, as a healthcare worker I really struggled without the time out football gave me"	26	0.93
No negatives referenced	No reference to negative impact	"didn't miss the game that much"	11	1.00	

Key: Frequency = number of responses categorised; κ = Cohen's Kappa

the pandemic, while “missed the team environment” was the most commonly cited negative aspect of the suspension period. Agreement on coding ranged from 92.59 to 97.09%, indicating strong agreement between reviewers (McHugh, 2012).

4. Discussion

This study has provided novel insight into the impact of an unanticipated, longitudinal change-event, namely the pandemic-induced suspension of organised sport, on athlete burnout and the related factors in Gaelic games athletes. In contrast to other studies highlighting the negative impact of the pandemic on mental health (e.g. Fronso et al., 2020; Xiong et al., 2020), findings did not indicate any significant increases or decreases in athlete burnout or perceived stress reported by participants following the suspension of sport. However, while *training demands* also remained stable, there was a significant reduction in off-field sport demands upon the resumption of sport. We also explored predictors of burnout following an unanticipated change-event; in-line with existing theory (e.g. Smith, 1986), burnout BC-19 and stress were significant positive predictors of burnout. Furthermore, when levels of burnout BC-19 and stress were controlled for, a *reduction in other hours* and *pleasant emotions* about the return to sport were negative predictors of burnout AC-19. *Unpleasant emotions* about the return to sport positively predicted burnout. While these findings are in-line with our hypotheses, the positive relationship between *viewing the suspension period as a time to rest and recover* and burnout, and the absence of significant impacts of *training hours* and positive and negative appraisal of the change-event on burnout were contrary to our hypotheses.

As such, the data suggests that the change-event neither exacerbated nor relieved the maladaptive responses of burnout and stress. The stable stress levels identified in our sample are in contrast to the significant increase in perceived stress, from low to moderate, identified in Italian athletes following the COVID-19 outbreak (Fronso et al., 2020). However, it was notable that mean scores of *perceived stress* for our sample were in the ‘moderate stress’ category (Cohen et al., 1994) before and after the change-event, which may indicate that these athletes found their sport particularly stressful during a regular season. As such, it is possible that any potential increase in stress associated with the pandemic was offset by a reduction in stress associated with sport participation and increased detachment from sport; an argument that is supported when we consider the qualitative data, where “more time for other things” and “enjoyed the break/rest from the demands of Gaelic games” (e.g. “no busy schedule, time to appreciate life”) were the most commonly cited positive outcomes of the suspension period. Previous research has identified the struggle to balance competing priorities with sport commitments as an issue negatively impacting Gaelic games players (Woods et al., 2020), and other amateur sports-people such as student-athletes (e.g. Kristiansen, 2015), while increased demands have also been associated with less detachment from sport (Balk & deJonge, 2021). However, as both this study and di Fronso and colleagues’ (2020) work employed the PSS-10, which is a measure of general stress but can also more specifically be viewed as a measure of the secondary evaluation of stress, namely the perceptions of coping and control (Cercle et al., 2008), it was not possible to disaggregate different sources of stress or primary “stressing factors” (Cercle et al., 2008, p. 228) and explore this further.

In addition, while we theorised that the suspension period may have provided athletes with a break from the demands of sport, examination of the range of responses to this change-event suggests that many athletes were likely unable to achieve the necessary conditions for complete detachment, which is characterised both by physical rest, and cognitive and emotional disengagement or “switching off” from one’s sport (Balk et al., 2017; Eccles & Kazmier, 2019); this may provide some explanation for the absence of a change in burnout. Specifically, although the data does indicate that a majority of athletes were less active during the suspension period than in a regular season, off-field demands were

reduced, and “*enjoying the break from the demands of Gaelic games*” emerged as a positive outcome of the change-event, there were no significant changes in the temporal demands of physical training, and most athletes continued to focus on improving Gaelic games-specific skills to at least some extent, with a number viewing the period as a “*chance to improve as a player*”. Furthermore, open-ended responses pointed to a range of negative consequences associated with the suspension period, including a negative impact on physical and mental health, and missing routine and the team environment. The latter point may suggest athletes’ need for social relatedness, which has been associated with decreased burnout (e.g. Lin et al., 2021), was unfulfilled during the lockdown period. In combination, these data highlight the variety and complexity of responses to an unanticipated, non-controlled change-event, and suggest that, despite suspensions to organised sport, this period did not provide sufficient opportunity for sport detachment for all athletes.

In addition, although no significant changes in burnout were identified in this study, our results suggest that feelings of burnout can be predicted by factors and responses associated with a change-event, and, as such, highlight the importance of exploring and understanding these variables. Specifically, results indicate that, following an unanticipated suspension of sport, reducing *other hours* associated with sport participation, working to promote *pleasant emotions* of excitement and happiness, and guarding against feelings of anxiety, anger and dejection about returning to sport may reduce the risk of burnout. The impact of athletes’ appraisals of the return to sport here provides some support for the argument that a positive emotional response to a change-event is adaptive, while a negative emotional response is maladaptive (Samuel & Tenenbaum, 2011b). In addition, the positive association between a reduction in *other hours* committed to sport, averages for which almost halved AC-19 S compared to pre-pandemic data, and lower levels of exhaustion provides support for existing research linking sport demands and burnout (e.g. Cresswell & Eklund, 2006b), and suggests that efforts to reduce off-field time commitments can reduce feelings of burnout even if physical training demands are maintained. The qualitative data further highlights the reduction in demands on athletes’ time as a positive outcome of this change-event, under the categories of ‘*more time for other things*’ and ‘*enjoyed the break from the demands of Gaelic games*’. Away from the focus on change-events, these results also provide further support both for the importance of creating opportunities for detachment from sport (Balk et al., 2017), and for the argument that an imbalance in sport-life demands may be an important predictor of burnout in amateur athletes (Woods et al., 2020). Key stakeholders in amateur sports should consider the positive impact of this reduction in *other hours*, which was likely a direct result of COVID-19-related restrictions (GAA, 2020), when making decisions around the continuation or cessation of these policies as we emerge from the pandemic change-event.

Furthermore, in a result that appears to be at odds with research highlighting the importance of rest for athletes (e.g. Tabei et al., 2012), key stakeholders in sport should be aware that athletes who view a change-event involving the suspension of sport as a *chance to rest/recover* can experience higher levels of sport devaluation. While contrary to our hypothesis, some explanation for this relationship may be provided by the sentiments expressed through the open-ended responses; under the “*chance to reflect*” category, which relates to realisations and reflections made by athletes as a result of the change-event, a number of respondents suggested that the enforced break from the demands of sport led them to the realisation that sport no longer held the same level of importance in their lives (e.g. “*I realised I’d be fine without playing sport*” and “*I have decided that the effort of Gaelic games is no longer worth the reward*”). These findings may also support the idea that athletes employ sport devaluation as a coping strategy to deal with exhaustion, as suggested in the job burnout literature (Maslach et al., 2001), although support for this temporal relationship between burnout dimensions is lacking in the sport context (Lundkvist et al., 2018).

Finally, and again in contrast to our hypotheses, athletes' positive and negative appraisals of this change-event did not impact feelings of burnout. However, this may be explained by the fact that the majority of respondents reported a mixture of positive and negative perceptions, thus highlighting the complex nature of this change-event. Specifically, while almost 95% of participants noted some negative impact of this suspension period, which is in line with data from American collegiate athletes (Garver et al., 2021), almost 86% of participants also felt there were some positives associated with the suspension of sport. Importantly, the qualitative data allowed us to explore the rationale behind these responses with greater nuance, and may help to inform responses to future change-events; categories from this content analysis associated with the negative impact of the change-event highlight the important role of sport in these athletes' lives, and suggest that, in cases where a change-event substantially disrupts sport participation, maintaining social interactions and a routine, as well as encouraging athletes to continue to be physically active, may be especially important. In addition, practitioners and key stakeholders working with athletes through similar change-events should consider how they could facilitate some of the positive responses reported here; for example, focusing on having time to explore other interests or improving as an athlete. Furthermore, it is also important to consider how we might create opportunities for athletes to continue to experience the benefits associated with the suspension period, beyond this change-event. For example, designated time off from the physical, emotional and cognitive demands of sport, which has been associated with reductions in stress (e.g. Balk et al., 2017), and optimal rest conditions (Eccles & Kazmier, 2019) may be beneficial to allow for these experiences.

Overall, this study provides novel and important insight into the complexities of a change-event experience, and the implications for burnout. While no significant changes in burnout or stress were identified, results suggest that close attention should be paid to previous levels of burnout and feelings of stress reported by athletes, as these factors predicted higher levels of burnout following a change-event. Furthermore, in the context of the return to sport following a change-event, findings suggest that key stakeholders, such as sport psychologists, coaches and organising bodies, should work to reduce off-field temporal demands associated with sport, and encourage feelings of excitement and happiness about resuming sport participation, while working to address any anxiety, fear or anger. Interventions aimed at reducing anxiety around the return to sport following injury may be beneficial in this context, for example reducing pressure to return and providing sufficient social support (e.g. Podlog et al., 2011).

Notwithstanding the novel insight into athletes' experiences of an unanticipated change-event provided by this study, we must acknowledge some limitations of the project. Firstly, because data was gathered for the AC-19 S time-point four months after the onset of social distancing measures in Ireland, it is possible our analyses did not account for changes that may have occurred earlier on in the pandemic. However, as the existing literature on athlete burnout has identified changes in burnout across different points of the sport season (e.g. Cresswell & Eklund, 2006a), we aimed to mitigate the impact of this variability by comparing data gathered at the same time-point in the two seasons. In addition, as a result of attrition across time-points, sample size was relatively small, although we did achieve the recommended ratio of participations to predictors (10:1; VanVoorhis & Morgan, 2007) for HMR. Where data is available for athletes pre- and post-change-event, future research should examine changes in burnout across a larger sample of athletes from a range of sports. A focus on specific stressors, such as general life and sport-specific stress, as well as an exploration of potential mediators and moderators of the stress-burnout relationship, may also provide a more nuanced insight into the impact of such a change-event.

Findings from this study can help to inform decisions relating to how athletes are supported during unanticipated, non-controlled changed-events, and the return to play. As we move out of the pandemic,

researchers should continue to explore the impact of unanticipated change-events and suspension periods on athlete burnout and stress, with a view to developing guidelines aimed at reducing maladaptive responses.

5. Declaration of interest statement

The authors declare they have no conflict of interest. The first author (SW) was the recipient of a University studentship which served as funding for the project.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.psychsport.2022.102168>.

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