

Committed to Burnout: An investigation into the relationship between sport commitment and athlete burnout in Gaelic games players

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Abstract

This study examined the relationship between sports commitment, outlined in the hierarchical Sport Commitment Model, and athlete burnout in men and women playing Gaelic games, for the first time. These athletes experience a number of unique challenges, including playing with numerous teams simultaneously, significant personal commitment despite their amateur status, and the societal and cultural importance of their sports. This study also involved piloting a novel commitment measure of ‘*team importance*’ for team-sport athletes.

Two-hundred-and-one male and female Gaelic games players completed the Sports Commitment Questionnaire, *team importance* measure and Athlete Burnout Questionnaire.

Hierarchical Multiple Regression analyses revealed a negative relationship between *sport enjoyment*, *social support (emotional)* and *desire to excel* and particular burnout components; a positive relationship between *other priorities* and *personal investments* and particular burnout components; and *enthusiastic commitment* was associated with lower burnout, while *constrained commitment* was linked to higher burnout. The *team importance* measure was also found to be a reliable and valid measure of sports commitment. These findings provide important insight into how sports commitment can contribute to, or guard against, burnout in male and female athletes.

Keywords: burnout, sport psychology, sport commitment model, Gaelic games

1 characterised by decreasing rewards and satisfaction, increasing perceived costs and investments, and
2 little perceived alternatives, were more likely to experience burnout. Raedeke (1997) found that
3 swimmers with high levels of enjoyment, perceived investment, perceived control and benefits,
4 combined with low levels of social constraint and perceived limited costs associated with, and possible
5 alternatives to, their sport participation, showed the lowest levels of burnout among the swimmers
6 assessed (Raedeke, 1997). In contrast, swimmers who reported low enjoyment, benefits, investments
7 and perceived control, along with high costs, social constraints and number of attractive alternatives to
8 sport experienced significantly higher levels of burnout (Raedeke, 1997). Notably, the impact of
9 investments on burnout differs from that proposed by Schmidt and Stein (1991).

10 Although researchers have examined burnout across a range of sports, including rugby (e.g.
11 Cresswell & Eklund, 2006), golf (e.g. Cohn, 1990), athletics (e.g. Kjølmo & Halvari, 2002) and
12 soccer (e.g. Lai & Wiggins, 2003), there has been a limited focus on the relationship between
13 commitment and burnout beyond Raedeke's original work over two decades ago. Furthermore, in that
14 time, the Sport Commitment Model (SCM) on which Raedeke's (1997) work was originally based, has
15 seen significant amendments and additions (e.g. Scanlan et al., 2013). The current SCM is a
16 comprehensive hierarchical model of commitment, in which the antecedent factors of *sport enjoyment*,
17 *social constraints*, *involvement alternatives*, *personal investments*, *involvement opportunities*, *desire to*
18 *excel*, *social support* and *team traditions*, are said to predict two opposing higher-order commitment
19 types; *enthusiastic* and *constrained* commitment (Carpenter & Scanlan, 1998; Carpenter et al., 1993;
20 Scanlan et al., 1993a; Scanlan et al., 1993b; Scanlan et al., 2009; Scanlan et al., 2013). We have
21 provided a description of each of the SCM variables in Table 1 below.

22 "Gaelic games¹" are team sports native to Ireland. They are played and followed by fans in
23 large numbers across Ireland and the rest of the world. Although similar to other field sports in-terms

¹ *Gaelic games* refers to a group of native Irish sports, including hurling, Gaelic football, court handball, road balls and rounders. Gaelic football and hurling are the most popular of these sports (Reilly & Collins, 2008), and are played by both men and women. Games in all four sports involve two teams of 15 players. Gaelic football and ladies Gaelic football

1 of physical demands (e.g. Brown & Waller, 2014), players can often face distinct challenges to their
2 sport commitment; athletes are often required to play for multiple teams simultaneously, including
3 their local club, college and county, resulting in little to no off-season (Turner & Moore, 2016). In
4 addition, despite what are often professional-like levels of training, the sports retain a fundamentally
5 amateur status, thus requiring players to balance work, studies and sporting commitments (Sheehan et
6 al., 2018; Turner & Moore, 2016). Recent research by the Economic and Social Research Institute in
7 Ireland (ESRI; Kelly et al., 2018) found that 40% of top-level male players had no time off during the
8 season, while the remainder reported an average of just 5 weeks off across the 12 months of the year.
9 Players also reported dedicating up to 30.8 hours per week to their sporting commitments, in addition
10 to 39 hours of work, allowing for just 16.8 hours of downtime over 7 days (Kelly, 2018). Such a level
11 of commitment, which may appear to be at odds with the amateur status of the sports, has resulted in a
12 situation whereby players can be viewed as “professional in most respects except the capacity for rest”
13 (Moran, 2001, p. 280). These issues may be further compounded by the substantial level of importance
14 the games hold in Irish society (Liston, 2015), which can create a sense of obligation to play (Hughes
15 & Hassan, 2015; Liston, 2015). As such, Gaelic games players face a unique combination of
16 challenges in their sport participation, including amateur status combined with significant training
17 load, representing multiple teams simultaneously, lack of a designated off-season, and substantial
18 societal importance of the sports. These challenges may impact sport commitment through increased
19 *other priorities, social constraints* and *constrained commitment*, thus making athletes more susceptible
20 to burnout (Raedeke, 1997). Understanding the commitment-burnout relationship in Gaelic games
21 may also have implications for other sports where athletes can face challenges in commitment, such as
22 similarly intensive amateur sports and sports of significant societal importance.

(ladies football) are the men’s and women’s versions of a game in which players pass a soccer-style ball with their hand or foot. Hurling and camogie (women’s hurling) require players to hit a small, hard ball with a wooden stick, or hurl. In this article, the term ‘Gaelic games’ is used in reference to these four sports only. Interested readers may wish to visit the GAA website for more information (<https://www.gaa.ie/the-gaa/about-the-gaa/>)

1 As outlined previously, *team traditions* is an antecedent commitment factor in the SCM.
2 However, despite being identified as having “potentially important implications for a better
3 understanding of sport commitment in a team context” (Scanlan et al., 2013, p. 533), it was not
4 included in the Sport Commitment Questionnaire-2 (SCQ-2; Scanlan et al., 2016), the measure to
5 assess the SCM, as it applies to team-sport athletes only. As such, there is currently no quantitative
6 measure to assess *team traditions*. We aimed to develop a reliable measure of *team traditions*, in order
7 to fill this gap in the current SCQ-2, and to capture all aspects of commitment in the team-sport
8 athletes who participated in this study.

9 The existing research on the relationship between commitment and burnout indicates that
10 commitment factors are associated with burnout levels (Raedeke, 1997). However, the burnout-
11 commitment relationship has been examined to a limited extent to-date, without the use of the
12 comprehensive SCM (Scanlan et al., 2013), which includes the additional components of *social*
13 *support, desire to excel, and team traditions*, and excludes perceived control and perceived cost as
14 commitment antecedents. Furthermore, this relationship is yet to be examined in athletes who can
15 experience unique challenges to their commitment, which may put them at greater risk of experiencing
16 constrained commitment and burnout. In order to fill this gap in the literature, we conducted an
17 exploratory national survey to examine the level of burnout, and the relationships between sports
18 commitment and the dimensions of burnout among Gaelic games players in Ireland.

19 We have outlined our hypotheses for the relationship between each commitment variable and
20 burnout in Table 1 below. The *sport enjoyment, personal investments (loss and quantity) and social*
21 *constraints* variables have previously been examined by Raedeke’s (1997) and, as such, the hypotheses
22 for these variables are based on the relationships reported there-in. Similarly, the SCM variables *other*
23 *priorities* and *valuable opportunities* are theoretically similar to the ‘attractive alternatives’ and
24 ‘perceived benefits’ variables also examined by Raedeke (1997), and thus the relevant hypotheses
25 were again based on this research. Although no previous research has examined the relationship

1 between burnout and *desire to excel*, we hypothesise a negative relationship between these variables
2 and burnout, as they can be viewed intuitively as opposing factors to *sport devaluation*, which is a
3 symptom of burnout (Gustafsson et al., 2008; Raedeke et al., 2002). In addition, while not previously
4 examined in the commitment context, increased *social support* has been linked to lower levels of
5 athlete burnout (e.g. Cresswell, 2009). We hypothesised that the commitment subtypes of *enthusiastic*
6 *commitment* and *constrained commitment* would have a unique, opposing impact on burnout when
7 sociodemographic factors and the antecedent factors above were accounted for, as they are higher-
8 order variables in the SCM (Scanlan et al., 2016). Finally, we took an exploratory approach to the new
9 *team importance* variable, with no specific hypothesis relating to its relationship with the components
10 of burnout. We hypothesised that the same relationship would exist between each commitment
11 variable and all three dimensions of burnout, namely PEE, RSA and SD, as the limited previous
12 research examining the burnout-commitment relationship has not examined the individual impact of
13 commitment variables on each dimension (Raedeke et al., 1997). Furthering our understanding of
14 commitment-based predictors of PEE, RSA and SD could inform future interventions to address
15 athlete burnout.

16

1 **Table 1**2 *Description of commitment variables and hypothesised relationship with burnout.*

No.	Commitment Variable	α	Description of Variable (Scanlan et al., 2016, p.235; Scanlan et al., 2013)	Hypothesised relationship with burnout
1	<i>Sport Enjoyment</i>	0.92	The positive affective response to sport.	Negative
2	<i>Personal Investment - Loss</i>	0.81	Personal resources put into a sport that cannot be recovered in participation is discontinued.	Negative
3	<i>Personal Investment – Quantity</i>	0.73	The amount of personal resources put into a sport.	Negative
4	<i>Social Support - Emotional</i>	0.79	Encouragement, care and empathy received from significant others in a sport.	Negative
5	<i>Social Support - Informational</i>	0.84	The provision of useful information, guidance, or advice received from significant others in a sport.	Negative
6	<i>DtE – Social Achievement</i>	0.87	Wanting and/or striving to improve and achieve mastery in a sport.	Negative
7	<i>DtE – Mastery Achievement</i>	0.90	Wanting and/or striving to win and establish superiority over opponents in a sport.	Negative
8	<i>Valuable Opportunities</i>	0.73	Important opportunities that are only present through continued involvement in sport.	Negative
9	<i>Other Priorities</i>	0.82	Attractive and/or pressing alternatives that conflict with continued sport participation.	Positive
10	<i>Social Constraints</i>	0.71	Social expectations or norms that create perceptions of obligation to remain in a sport.	Positive
11	<i>Team Importance</i>	-	The pride an honour associated with being on a team, often combined with a sense of responsibility and desire to maintain standards.	Two-tailed
12	<i>Enthusiastic commitment</i>	0.92	The psychological construct representing the desire and resolve to persist in a sport over time.	*Negative
13	<i>Constrained commitment</i>	0.78	The psychological construct representing the perceptions of obligation to persist in a sport over time.	*Positive

3 **Key:** DtE = Desire to Excel; Positive/Negative = direction of the correlation with athlete burnout in HMR (when
4 demographic variables are controlled for); α = Cronbach's alpha level; Two-tailed = exploratory, no specific hypothesis;
5 **bold*** = We hypothesised that these variables would have a unique impact on burnout when all other variables are
6 controlled for. *Note.* α for Team Importance is reported in the results section.

7

Method

Design

This study had a cross-sectional survey research design. The outcome variables comprised participants' scores on each burnout component (PEE, RSA and SD respectively). The variables derived from the SCM were included as predictors of burnout, namely the antecedents of commitment; *sport enjoyment, valuable opportunities, other priorities, personal investments, social constraints, social support, desire to excel* and *team importance*, and the two subtypes of commitment; *enthusiastic commitment* and *constrained commitment* (Scanlan et al., 2016). Gender, sport, age and number of teams represented were also included as covariates.

Participants and Recruitment

Any individual who was playing on a competitive Gaelic football, hurling, ladies football or camogie team, and was aged 18 or over at the time of recruitment, was eligible for participation. Those under 18 or part of a team that did not play competitive games were ineligible for participation. We used purposive sampling, contacting key stakeholders in clubs, counties and player groups via email and social media, with relevant information and a link to the questionnaire, in order to gain access to potential participants. This was supplemented with a snowball sampling strategy, whereby those contacted were asked to forward the link to others who may be interested, as there was no one method for reaching all eligible athletes. Recruitment took place in-season, throughout the month of February. The recruitment message was viewed 179,629 times on social media.

Materials

The Sport Commitment Questionnaire-2 (SCQ-2)

We used the SCQ-2 (Scanlan et al., 2016) to measure the antecedents of commitment. The questionnaire includes seven subscales for antecedent commitment factors outlined in the SCM; *sport enjoyment, valuable opportunities, other priorities, personal investments (quantity and loss), social constraints, social support (informational and emotional)* and *desire to excel (mastery achievement*

1 and *social achievement*), and the two commitment subtypes; *enthusiastic commitment* and *constrained*
2 *commitment*. Scanlan and colleagues (2016) reported that the reliability of the subscales ranges from
3 0.71 to 0.92 (see Table 1 for all Cronbach's alpha levels). This scale has 59 items (e.g. "*other things in*
4 *my life make it difficult to play this sport*"), and is measured on a 5-point Likert scale, from "strongly
5 disagree" to "strongly agree".

6 ***Team Importance Measure***

7 We created a new *team importance* measure for the purpose of this study. We developed this
8 scale using the contents of qualitative research conducted by Scanlan and colleagues (2013) with the
9 New Zealand All Black and Silver Fern teams, in which they identified the following components of a
10 "team traditions" theme: a sense of pride (e.g. "*pride has a lot to do with wanting to represent your*
11 *country*") and honour (e.g. "*it's an honour being able to achieve and be part of that particular*
12 *group*") related to team involvement, and a sense of responsibility for upholding team standards (e.g.
13 "*I want to be respected by fellow All Blacks...it's got to be earned through setting standards and*
14 *meeting standards*"; "*within that pride is a sense of responsibility because you are the chosen few*").
15 While the scale was directly developed from qualitative research on "team traditions", the factor has
16 been re-named *team importance*, as we felt this more accurately represented the overall thematic
17 content of the questions, while capturing the content of this theme as it emerged in Scanlan and
18 colleagues' (2013) work. The initial measure consists of 13 questions based around the subthemes
19 outlined above, with a 5 point Likert scale design, rated from "strongly agree" to "strongly disagree"
20 (see the supplementary appendix File 3 for full measure). Mean scores can range from 0-5 on this
21 scale, with higher scores suggesting a higher level of *team importance*.

22 ***The Athlete Burnout Questionnaire (ABQ)***

23 The ABQ (Raedeke & Smith, 2001) was used to measure the components of burnout. This
24 questionnaire includes 15 items, with five items for each of the three subscales of burnout; PEE (e.g.
25 "*I feel overly tired from my sport participation*"), RSA (e.g. "*I am not achieving much in this sport*")

1 and SD (e.g. “*I’m not into this sport like I used to be*”). Responses are measured on a 5-point Likert
2 scale, rated from “strongly agree” to “strongly disagree”, and participants’ scores on each subscale
3 were averaged. As such, mean scores on each subscale can range from a minimum of one, which
4 suggests the player is not experiencing the burnout component, to a maximum score of five, which
5 suggests the burnout component is very relevant to the player. Gerber and colleagues (2018) recently
6 reported good internal consistency for the PEE, RSA and SD subscales, with Cronbach’s alpha scores
7 of 0.80, 0.78 and 0.78 respectively.

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

10 **Procedure**

11 This study received ethical approval from an institutional review board in [organization name
12 removed for review]. The data was gathered by the first author using Qualtrics, an online survey
13 development and data collection platform. Participants had access to the link via Whatsapp, email or
14 Twitter, and could complete the online questionnaire wherever they felt most comfortable. The link
15 first directed participants to a plain language statement and consent form. Participants could only
16 access the questionnaire once consent had been obtained. The questionnaire began with demographic
17 questions, followed by the ABQ, the Team Importance Scale, and the SCQ-2. Participants were
18 provided with a debriefing sheet before deciding to submit their answers.

19 **Data analysis**

20 The data from the online questionnaires was analysed using IBM SPSS version 23. Principal
21 Component Analysis was conducted on the new scale for the *team importance* factor to examine
22 whether it was measuring a single, valid construct of interest. We conducted three hierarchical multiple
23 regression (HMR) analyses, using data gathered through the ABQ, the SCQ-2 and the newly
24 developed *team importance* measure, in order to examine the relationship between commitment factors
25 and each component of burnout. The SCM is a hierarchical model in which the antecedents of

1 commitment are posited to influence the commitment subtype experienced. As such, we entered
2 antecedents and subtypes in separate blocks to allow for the exploration of the unique contribution of
3 both levels of the SCM to variance in scores on each of the three burnout components. The covariates
4 of age, gender, specific sport, and number of teams represented were entered in Block 1, in order to
5 account for their potential influence separately. Previous research has shown that the influence of
6 commitment factors can vary based on age and gender (Casper & Stellino, 2008). Additionally, we
7 controlled for *number of teams represented* as it has been argued that burnout in Gaelic games is
8 linked to the requirement on many players to represent multiple teams (Turner & Moore, 2016). The
9 SCM commitment antecedents were entered into Block 2 in each of the HMR analyses. This included
10 *sport enjoyment, other priorities, personal investments (loss), personal investments (quantity), social*
11 *constraints, social support (emotional), social support (informational), desire to excel (social*
12 *achievement), desire to excel (mastery), and valuable opportunities*, as assessed by the SCQ-2, and
13 *team importance*, which was assessed using the newly developed measure. The two commitment
14 subtypes of *enthusiastic commitment* and *constrained commitment* were entered separately into Block
15 3 of each HMR, allowing us to examine the unique influence of commitment type on burnout, after
16 controlling for commitment antecedents and sociodemographic factors.

17 **Results**

18 **Descriptive Statistics**

19 Two-hundred and one athletes participated in the study, with a relatively even mix of males
20 (48.3%) and females (51.7%), aged 18 – 41 years ($M= 23.27$, $SD= 4.877$). A greater percentage of
21 female (38.8%) and male (39.3%) Gaelic footballers were recruited, compared to hurlers (9%) and
22 camogie players (12.9%), which is roughly representative of the playing popularity of the four sports.
23 Table 2 provides information on the breakdown of scores on the ABQ and SCQ-2 subscales across
24 sports. With regard to the ABQ, 9.95% of players scored ≥ 3 on PEE, RSA and SD (high burnout;
25 Dubuc-Charbonneau et al., 2014). 18.41% scored ≥ 3 on two burnout dimensions (moderate burnout;

1 Dubuc-Charbonneau et al., 2014) while 8.46% of players scored ≤ 2 on all three burnout dimensions
 2 (low burnout; Dubuc-Charbonneau et al., 2014). 31.34% of participants reported PEE scores of ≥ 3 ,
 3 while 37.31% and 23.88% of participants scored ≥ 3 for RSA and SD subscales respectively.

4 **Table 2**

5 *Mean (M) and Standard Deviations (SD) of ABQ and SCQ-2 subscale scores across sports*

	Gaelic		Ladies		Camogie		Hurling	
	Football		Football					
ABQ	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Variable								
Exhaustion	2.45	0.76	2.51	0.75	2.53	0.74	2.51	0.77
Reduced Accomplishment	2.72	0.75	2.81	0.76	2.73	0.73	2.70	0.74
Sport Devaluation	2.19	0.77	2.30	0.92	2.27	0.84	2.25	0.86
SCQ-2								
Variable								
Enthusiastic Commitment	4.18	0.80	4.28	0.61	4.26	0.73	4.34	0.52
Constrained Commitment	2.89	1.15	2.81	1.01	2.75	1.29	2.51	1.02
Enjoyment	4.23	0.83	4.53	0.50	4.58	0.47	4.70	0.37
Other Priorities	3.18	0.87	3.11	0.93	3.38	0.98	3.34	0.98
Personal Invest - Loss	3.95	0.80	4.05	0.78	3.96	0.80	3.90	0.81
Social Constraints	3.80	1.00	3.62	0.96	3.86	0.92	4.01	0.57
Social Support - Emotion	3.85	0.78	4.00	0.93	3.99	0.91	3.70	0.97
Social Support - Info	3.50	0.80	3.61	0.81	3.68	0.87	3.34	0.69
Desire to Exel – Mast Ach	4.38	0.57	4.34	0.54	4.25	0.70	4.36	0.70
Desire to Excel – Soc Ach	4.31	0.57	4.40	0.52	4.39	0.72	4.32	0.56
Valuable Opportunities	4.09	0.61	4.18	0.69	4.17	0.73	4.38	0.58
Personal Invest - Quantity	4.68	0.40	4.61	0.44	4.65	0.44	4.54	0.43

6 **Key: Personal Invest - Loss** = Personal Investments (loss), **Social Support - Emotion** = Social Support (emotional),
 7 **Social Support - Info** = Social Support (informational), **Desire to Excel – Mast Ach** = Desire to Excel (mastery
 8 achievement), **Desire to Excel – Soc Ach** = Desire to Excel (social achievement), **Personal Invest - Quantity** = Personal
 9 Investments (quantity)

10

11 **Team Importance Measure Principal Component Analysis**

12 Principal Component Analysis (PCA) was conducted on the 13-item *team importance* measure
 13 as a means of data reduction. The inter-item correlations and the mean and standard deviation of each
 14 item, as well as the full description of each step of PCA are included in the supplementary appendix

1 (Supplementary File 2 and Supplementary Table 1). Seven items were retained following PCA. All
2 items are linked to the theme of honour and pride associated with representing a team, for example '*it*
3 *is an honour to represent this/these team(s) at social events*' (item 3; Supplementary Table 2). The
4 unrotated PCA for the 7-item solution revealed 1 component with an eigenvalue >1. This component
5 accounts for 53.90% of variance explained. A table outlining the factor loadings of the seven items that
6 were retained is included in the supplementary appendices (Supplementary Table 2). Reliability
7 analysis of the 7-item model revealed a Cronbach's Alpha level of 0.84, indicating that the single
8 component model was highly reliable.

9 **Hierarchical Multiple Regression (HMR)**

10 Three separate HMR analyses assessed the ability of the SCQ-2 and the *team importance*
11 measure to predict scores on each of the three burnout components (PEE, RSA and SD) in men and
12 women playing Gaelic games. Preliminary analyses confirmed that the data did not violate the
13 assumptions of normality, linearity, multicollinearity, homoscedasticity or independence of residuals
14 in each case. For each analysis, the Mahalanobis distance was above the critical chi-square of 30.14,
15 indicating the presence of multivariate outliers. However, the maximum Cook's distance value in each
16 case was well below the critical value of 1 (0.073 – 0.165) meaning these outliers were not influencing
17 any of the models to a great extent (Pallant, 2013). Based on the Cook's distance value and the small
18 number of outliers at play in the large sample, the data was retained. Inter-item correlations for the
19 variables included in the HMR are provided in Supplementary Table 3.

20 In the first model, Block 1 accounted for 3.2% of variance in participant PEE scores, this was
21 non-significant; $F(6, 194) = 1.052, p > 0.05$. At Block 2, the full model accounted for 40.6% of
22 variance in PEE scores; $F(17, 183) = 7.369, p < 0.05$. The predictors in Block 2 alone accounted for
23 37.5% of variance; R^2 change = 0.375, F change(11, 183) = 10.505, $p < 0.05$. When the commitment
24 subtypes were added in Block 3, the model accounted for 44.6% of variance in *exhaustion* scores;
25 $F(19, 181) = 7.678, p < 0.05$. The commitment subtypes alone accounted for 4% of variance; R^2

1 change = 0.040, F change (2, 181) = 6.521, $p < 0.05$. In the final model, the commitment antecedents
2 of *enjoyment* and *personal investments (quantity)* were statistically significant, as was the commitment
3 subtype *constrained commitment*. *Constrained commitment* and *personal investments (quantity)* were
4 positively correlated with PEE, while *sports enjoyment* was negatively correlated with PEE. These
5 results are in-line with hypotheses 1 and 13 (see Table 1). The hypothesised relationships between all
6 other commitment variables were not supported in relation to the PEE dimension of burnout.

7 In the second model, Block 1 accounted for 5.6% of variance in participant RSA scores, and
8 this was non-significant; $F(6, 194) = 1.935$, $p > 0.05$. When the commitment antecedents were added
9 in Block 2, the model accounted for 40.6% of variance in RSA scores; $F(17, 183) = 7.364$, $p < 0.05$.
10 The predictors in Block 2 alone accounted for 35% of variance; R^2 change = 0.350, F change (11, 183)
11 = 27.787, $p < 0.05$. With the addition of the commitment subtypes in Block 3, the model accounted for
12 42.9% of variance in RSA scores; $F(19, 181) = 7.167$, $p < 0.05$. Block 3 alone accounted for 2.3% of
13 variance; R^2 change = 0.023, F change (2, 181) = 4.515, $p < 0.05$. In this final model, *other priorities*
14 and *personal investment (loss)* were significantly and positively related to RSA while *sport enjoyment*,
15 *social support (emotional)*, *desire to excel (mastery)* and *enthusiastic commitment* were significantly
16 and negatively correlated with RSA. These results are in-line with hypotheses 1, 4, 7, 9 and 13.
17 Additional hypotheses were not supported for the RSA dimension of burnout (see Table 1).

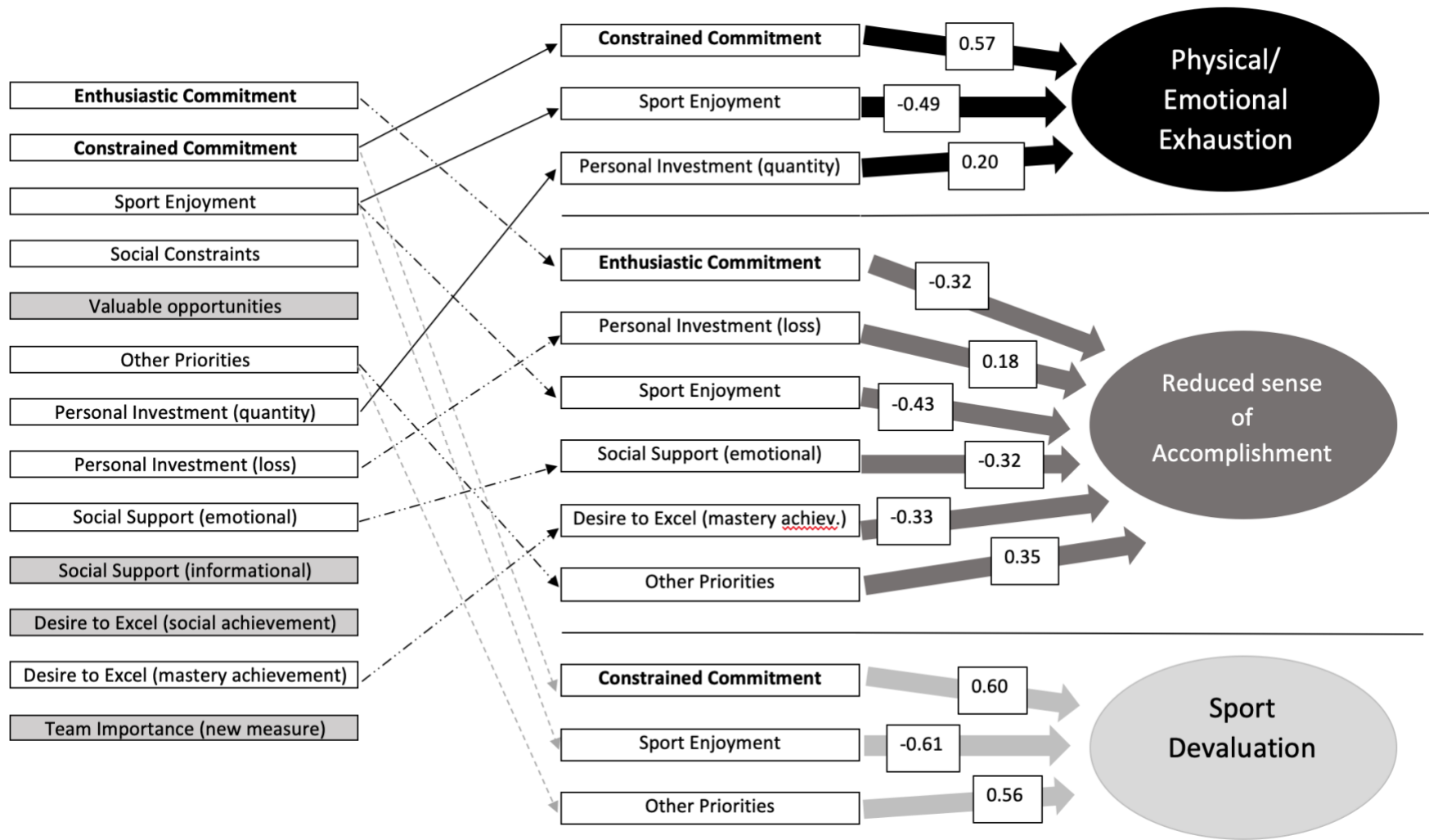
18 In the third model, Block 1 accounted for 2.7% of variance in participant SD scores, and this
19 was non-significant; $F(6, 194) = 0.493$, $p > 0.05$. With the commitment antecedents added in Block 2,
20 the model accounted for 61.9% of variance in SD; $F(17, 183) = 17.453$, $p < 0.05$. The predictors in
21 Block 2 alone accounted for 59.1% of variance; R^2 change = 0.591, F change (11, 183) = 9.977, $p <$
22 0.05. Block 3, which included the commitment subtypes, increased the variance accounted for by the
23 model to 63.7% of variance in SD scores; $F(19, 181) = 16.691$, $p < 0.05$. Block 3 alone accounted for
24 1.8% of variance; R^2 change = 0.018, F change (2, 181) = 3.669, $p < 0.05$. In this final model, *other*
25 *priorities* and the commitment subtype of *constrained commitment* were both significantly and

1 positively related to SD. *Sport enjoyment* was significantly and negatively correlated with SD. The
2 results are in-line with hypotheses 1, 9 and 13 (see Table 1). Results failed to support all other
3 hypotheses for the SD dimension of burnout.

4 Figure 1 provides a graphical description of the significant relationships that emerged across
5 the three HMR analyses. Table 3 outlines the beta values, standard error beta values, significance
6 levels, R^2 and adjusted R^2 of the variables in each of the three models.

7 Discussion

8 To our knowledge, this study is the first to explore the relationship between the full range of
9 sport commitment factors identified in the SCM (Scanlan et al., 2013), and the three core components
10 of burnout as identified by Raedeke (1997). Furthermore, this study involved the development and
11 piloting of the first psychometric measure of the *team importance* aspect of sports commitment with
12 male and female athletes. Scanlan and colleagues (2013) have previously reported on the importance
13 of this factor in the commitment profile of team-sport athletes. Hierarchical multiple regression
14 analyses revealed a complex relationship between the commitment antecedents and burnout, which
15 varied across burnout dimensions. Higher scores on the PEE subscale were linked to perceived high
16 *quantity of personal investment* (contrary to hypothesis 3) and lower *enjoyment* (in-line with
17 hypothesis 1), while higher scores on SD were associated with increased *other priorities* (in-line with
18 hypothesis 9) and reduced *enjoyment* (in-line with hypothesis 1), and RSA was associated with
19 increased *other priorities* (in-line with hypothesis 9), increased fear of *loss of personal investment*
20 (contrary to hypothesis 3), as well as lower levels of *enjoyment* (in-line with hypothesis 1), *emotional*
21 *social support* (in-line with hypothesis 4) and *desire to excel* in skill mastery (in-line with hypothesis
22 7). The findings also emphasize a complex relationship between the commitment subtypes *enthusiastic*
23 *commitment* and *constrained commitment* and burnout components, with the former associated with
24 lower levels of RSA (in-line with hypothesis 12), and the latter associated with higher levels of PEE
25 and SD (in-line with hypothesis 13). Finally, although the newly-developed *team importance* measure



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Figure 1. *The commitment variables that emerged as significant in each of the three HMR analyses, and the correlation between these variables and the burnout dimension(s) to which they are related.*

Key: = variable not significant in any HMR analyses; \rightarrow = variable significant in PEE HMR; \dashrightarrow = variable significant in RSA HMR; \dashrightarrow = variable significant in SD HMR; Variable in **Bold** = commitment subtypes

1 **Table 3**

2 *All HMR model predictor information (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				0.032	0.002				0.056	0.027				0.027	-0.003
Step 2				0.406***	0.351				0.406***	0.351				0.619***	0.583
Step 3				0.466***	0.388				0.429***	0.369				0.637***	0.599
(Constant)	2.96	0.83				4.85	0.84				3.98	0.77			
Ladies Football	-0.54	0.24	-0.35*			0.08	0.24	0.05			-0.03	0.22	-0.02		
Hurling	0.15	0.17	0.06			0.43	0.17	0.17*			0.04	0.15	0.02		
Camogie	-0.70	0.26	-0.32**			0.21	0.26	0.80			-0.15	0.24	-0.06		
Gender	-0.64	0.24	-0.43**			0.08	0.24	0.05			-0.02	0.22	-0.01		
Age	0.01	0.01	0.03			-0.01	0.01	-0.07			0.01	0.01	0.05		
No.of teams	0.03	0.04	0.05			-0.10	0.04	-0.14*			-0.00	0.15	-0.01		
Sport Enjoyment	-0.36	0.11	-0.32**			-0.39	0.11	-0.35**			-0.28	0.10	-0.22**		
Other Priorities	0.10	0.06	0.13			0.14	0.06	0.17*			0.28	0.05	0.30***		
PI – Loss	0.09	0.08	0.10			0.18	0.08	0.19*			0.04	0.07	0.04		
Social Constraints	-0.03	0.06	-0.04			-0.01	0.06	-0.01			0.02	0.12	0.01		
SS– Emotional	-0.08	0.06	-0.09			-0.19	0.06	-0.22**			-0.06	0.05	-0.07		
SS - Informational	0.07	0.07	-0.08			-0.06	0.07	-0.06			0.04	0.06	0.04		
DtE – Social Achiev	0.02	0.12	0.02			-0.09	0.12	-0.15			-0.15	0.11	-0.11		
DtE – Mastery Achiev	-0.08	0.13	-0.06			-0.28	0.13	-0.22*			-0.14	0.12	-0.09		
Team Importance	-0.07	0.09	-0.05			0.05	0.09	0.04			-0.05	0.09	-0.03		
Valuable Opportunit.	-0.11	0.10	-0.10			-0.04	0.10	-0.04			-0.00	0.09	-0.00		
PI – Quantity	0.30	0.13	0.17*			0.03	0.13	0.02			0.07	0.06	0.08		
Enthusiastic commit.	0.16	0.12	0.14			0.31	0.12	0.29*			-0.19	0.11	-0.16		
Constrained commit.	0.21	0.06	0.30**			0.06	0.06	0.09			0.14	0.06	0.08*		

3 Key: *(p<.05); **(p<.01); ***(p<.001)

did not have a significant relationship with the dimensions of burnout, the measure did demonstrate good internal consistency and strong face validity. With further validation and psychometric evaluation in additional samples of players across other team sports, this new measure could be used in future sport commitment research with team-sport athletes.

On a broad level, the current pattern of results support the suggestion that burnout is a substantial issue in Gaelic games. Although no clinical cut-offs have been established for athlete burnout, Dubuc-Charbonneau and colleagues (2014) put-forward categories of high, moderate and low burnout, based on a combination of athlete burnout research (e.g. Eklund & Cresswell, 2007; Hodge et al., 2008; Raedeke et al., 2007) and clinical scores of work burnout (Maslach et al., 1996). Based on these categorisations (Dubuc-Charbonneau et al., 2014), 9.95% of participants in this study were in the high burnout category. It is notable that the percentage of Gaelic games athletes experiencing high levels of burnout exceeds estimates ranging from 1-9% in other sports (Dubuc-Charbonneau et al., 2014; Gustafsson et al., 2007), particularly considering the criterion for high-burnout used here-in is quite conservative (Dubuc-Charbonneau et al., 2014). In addition, as participants reporting high levels of burnout were actively playing Gaelic games when assessed, and thus had not dropped out, these results may support the idea that players feel obligated to stay in their sport. This is in line with anecdotes from Gaelic games (e.g. Hughes & Hassan, 2015) and, importantly, extends the findings of recent research which has exclusively focused on men playing Gaelic football (Turner & Moore, 2016), to demonstrate empirically that burnout is a problem which also has a substantial effect on all Gaelic games athletes. However, these results should be interpreted with caution, as debate remains regarding the clinical relevance of ABQ scores (Gerber et al., 2018). As such, the specific point at which athlete burnout symptoms become detrimental for the athlete is currently unknown.

Previous research on gender differences in athlete burnout has produced varied results (e.g. Isoard-Gauthier et al., 2015; Lai & Wiggins, 2003); although in-depth analysis of burnout across sports/genders was beyond the scope of this study, it was noted that, while players of both genders

reported similar levels of each burnout component, gender did have a significant impact on PEE, with females reporting higher scores. This is in-line with findings from research on occupational burnout (Puranova & Muros, 2010).

As hypothesised, on a broad level *enthusiastic commitment* was linked to lower levels of burnout (hypothesis 12), while *constrained commitment* was linked to increased burnout levels (in-line with hypothesis 13). Of greater interest is the fact that these commitment subtypes significantly impacted different individual burnout components, after controlling for commitment antecedents and sociodemographic variables. Players who reported high levels of *enthusiastic commitment* were less likely to feel a reduced sense of sporting accomplishment. However, contrary to our hypothesis, *enthusiastic commitment* did not have a clear relationship with feelings of PEE or SD. In contrast, *constrained commitment* was positively related to PEE and SD, but did not appear to have an impact on RSA. In other words, Gaelic games players whose commitment was driven by a sense of obligation were more likely to experience the PEE and SD dimensions of burnout.

While this variation in the relationship across burnout dimensions was not hypothesised, one possible explanation relating to PEE is that, because this subscale puts greater emphasis on how one feels physically, in contrast to the psychological and emotionally focused subscale for RSA, enthusiastically committed players may view the PEE component of burnout differently. Research indicates that we can experience a combination of eustress, wherein stressors are viewed enthusiastically and as challenges that one is confident of overcoming, and distress, wherein stressors are viewed as potentially harmful (Kozusznick et al., 2015). It is possible that eustress, which is linked to lower levels of exhaustion, is at play when facing issues relating to sporting accomplishment (RSA), while distress, which is associated with higher exhaustion levels (Kozusznick et al., 2015) may account for the variance related to the PEE component of burnout. These explanations, while tentative, warrant exploration in future quantitative research.

In addition, the absence of a relationship between *constrained commitment* and RSA may provide insight into why not all athletes who experience burnout dropout of their sport, which Raedeke (1997) suggests is one of the key benefits of examining burnout from the commitment perspective. In the context of Gaelic games, the impact of the status placed on these sports in society (Sheehan et al., 2018) may be two-fold. In one sense, as suggested by Hughes and Hassan (2015), the ideology that exists around their amateur nature and the sacrifice required for success may be used by managers and the sports' organizing bodies to control and exploit players, thus putting them at a greater risk of experiencing *constrained commitment* and, as demonstrated in this study, the associated increased risk of experiencing PEE and SD. However, this ideology and status may also have an opposing impact, insofar as it may contribute to an increased sense of accomplishment associated with participation. This may also be the case for other athletes competing at amateur levels with significant societal importance, such as collegiate American football in the United States (Lanter & Hawkins, 2013).

Our hierarchical multiple regression analyses also revealed that several antecedent commitment factors were associated with burnout in a complex manner. Of note, *sport enjoyment* was the only antecedent commitment factor to have a significant impact on all three burnout components of PEE, SD and RSA, as hypothesised (hypothesis 1). The negative association between this antecedent commitment factor and each burnout component indicates that individuals who report high levels of *sport enjoyment* are less likely to experience athlete burnout. This is in line with previous research, which has highlighted the importance of enjoyment in guarding against burnout (Raedeke, 1997), and the increased risk of burnout when there is a lack of *sport enjoyment* (Cohn et al., 1990). The negative correlation found between RSA and both *social support (emotional)* and *desire to excel (mastery)* indicates that players who feel supported and those who have a desire to master their skills are less likely to experience a RSA. However, such support or desire does not appear to have a significant impact on feelings of PEE or SD and, as such, only provides partial support for our hypotheses (4 and 7). While the absence of a significant link between these variables and the PEE and SD dimensions of

burnout was not hypothesised, these findings perhaps reflect the amateur and community-driven nature of Gaelic games, where players may view the development of their skills of and the relationships created as important accomplishments, rather than playing for potential reward (Perry, 2018; Quinlan, 2010). This may also provide additional support for the argument that the social status of these sports contributes to an increased sense of accomplishment associated with participation. Future research should examine the impact of these commitment variables on burnout in in other sports where significant demands are placed on amateur athletes (e.g. collegiate sports), and where the sport holds substantial societal importance (e.g. speed skating in the Netherlands).

One striking finding in relation to commitment antecedents was that, contrary to our hypotheses (2 and 3), *personal investments (loss)* and *personal investments (quantity)* were positively correlated with RSA and PEE respectively. Although neither correlation was very strong, further examination of the *loss* subscale items indicates that this positive relationship may make theoretical sense. The questions relate to a sense of entrapment, wherein an individual feels they cannot quit their sport because of the investments they have made. Raedeke (1997) found that entrapment based commitment is positively related to burnout. The link between the *quantity* subscale and PEE is in line with previous research on coach burnout, which found that individuals who had a higher perceived investment in coaching and lower rewards were more likely to experience feelings of PEE (Raedeke et al., 2000). These contrasting relationships highlight the importance of using a measure such as the SCM that captures the nuanced nature of commitment and its antecedent factors.

The positive correlation between *other priorities* and both SD and RSA, which was in-line with our hypothesis (hypothesis 9) and previous research in this area (Maslach & Goldberg, 1998; Raedeke, 1997), suggests that an increased number of competing responsibilities is linked to higher levels of burnout in Gaelic games. This provides support for the argument that the requirement on Gaelic games players to give significant levels of commitment to their sport, often representing multiple teams, in combination with full-time jobs or studies, and in the absence of a designated off-season, makes

competing priorities a particularly salient issue in these sports (Hughes and Hassan, 2015; Sheehan et al., 2018; Turner & Moore, 2016). This may also be the case for other high-performance amateur athletes, such as student-athletes (Lanter & Hawkins, 2013). However, it is interesting to note that *other priorities* fell just outside significance in relation to its impact on PEE. As such, it appears that, rather than impacting exhaustion levels, priorities competing with sport participation are more likely to lead a player to question whether they are accomplishing enough in their sport (RSA) and to devalue their sport participation.

It is worth noting that, when assessed using univariate analysis, *team importance* (hypothesis 11) was negatively related to all three burnout dimensions, while *desire to excel (social achievement;* hypothesis 6) and *social support (informational;* hypothesis 5) were both negatively related to RSA and SD, and *social constraints* (hypothesis 10) was significantly positively correlated with all three dimensions. In addition, while *valuable opportunities* was significant in terms of a negative relationship with SD and PEE, the subscale was not reliable in this sample, meaning it was poorly representative of the construct of interest, and thus may need further testing across sports to establish its influence on commitment. However, none of these variables retained their significance when we controlled for demographic variables such as age, gender, sport, and number of teams represented and, as such, all were non-significant across the HMR analyses. This suggests that burnout dimensions may be significantly impacted by these demographic factors and/or that there may be overlapping variance associated with these non-significant variables and the significant demographic variables. Future research should examine whether these factors play a role in burnout across other team sports.

The current pattern of findings has important implications for future interventions relating to athlete burnout. A basic early intervention procedure could involve relaying the findings of this study, for example the importance of *enthusiastic commitment* and *sport enjoyment* and the provision of *emotional social support* in guarding against burnout, and the dangers of *constrained commitment* and *other priorities*, to both players and coaches (Langan et al., 2013). This could be achieved through

information leaflets or workshops in local clubs. Promoting a better work-life balance has been recommended for dealing with job burnout (Grosch & Olsen, 1995), and this idea could also be explored from the athlete perspective, focusing on balancing training, recovery and responsibilities away from sport, and effective time management (Cooper & Cartwright, 1997) in player workshops. Finding a good recovery/training balance is also regarded as essential in athlete burnout prevention (Kellman, 2010). Such workshops could also incorporate mindfulness-acceptance techniques, which have been shown to positively impact commitment (Gardner & Moore, 2012) and are negatively correlated with burnout (Gustafsson et al., 2015). In addition, the findings of this study suggest that assessing athletes on certain SCQ-2 subscales could help to identify those at risk of developing burnout, thus allowing for targeted intervention strategies.

There are a number of strengths to the current study. Importantly, this study has added to research in the areas of burnout and sport commitment. As outlined above, the findings provide further support for previous research on burnout-commitment relationship (Raedeke, 1997), while the use of the updated SCM has facilitated the expansion of our understanding of this relationship, enabling us to explore the impact of a comprehensive range of commitment variables on burnout, a number of which had not previously been examined in this context. In addition, this study has further contributed to research around the SCM through the development of a reliable subscale assessing *team importance*. With further validation and if used in combination with SCQ-2, this measure can allow researchers to get a more complete picture of commitment in team-sport athletes. Findings also provide insight into the team-sport population, specifically improving our understanding of the levels of burnout experienced by male and female Gaelic games players, and the commitment factors that are associated with increased burnout levels. The potential applicability of these findings to the real-world issue of burnout in Gaelic games, through the interventions described above, is also a significant strength. It is likely that these findings can be generalised not only across Gaelic games players, but also athletes from other sports who give a substantial commitment at an amateur level (e.g. student-athletes) or

those participating in sports with similarly significant levels of national importance (e.g. speed skating in the Netherlands).

Limitations also exist within this study. Casper and Andrew (2008) found that playing level, from beginner to elite, can influence a number of commitment factors. We did not control for playing level and this could have had affected results. Focusing research on specific playing levels may provide further insight into potential variations in commitment and burnout between lower- and higher-level players. Furthermore, the recruitment strategy, which included purposive online sampling supplemented by snowball sampling, may not have reached all potentially eligible participants and, as such, the sample may not be fully representative of the playing population. It is also possible that findings from Gaelic games may only be generalizable across sports with similar characteristics, such as those with significant national importance.

The cross-sectional design of this study may also be a limitation. Variability has been found in burnout levels across the season (Cresswell & Eklund, 2006) and, although the majority of teams were beginning their season when data was collected, the staggered nature of the Gaelic games season (Turner & Moore, 2016) means that some teams were likely in the middle or end of their season, which may have impacted results. It is difficult to control for this in Gaelic games, as the same player can be simultaneously at the beginning, middle and end of the season with multiple teams. Future research should employ a longitudinal design to assess burnout in Gaelic games across the season. On a broader level, some researchers have raised concerns about the validity of the current definition of athlete burnout and the associated ABQ, due to the apparent instability in the burnout dimensions over time (Gerber et al., 2018; Lundkvist et al., 2018). As such, it is possible the ABQ scores recorded in this survey reflect transient feelings of PEE, RSA or SD, rather than a stable dimension of burnout. However, although future research may benefit from the use of a broader definition of burnout (Lundkvist et al., 2018), the ABQ has been found to be a valid and reliable measure (e.g. Isoard-Gauthier et al., 2010; Raedeke et al., 2013), and is based on the most commonly-accepted definition of

athlete burnout (Goodger et al., 2007). As such, we feel its use was appropriate in the context of this study.

To conclude, we have developed a reliable *team importance* measure which can be used in future sport commitment research. Previous research identified this as an important commitment factor in team sports (Scanlan et al., 2013). To our knowledge, this study is the first to use the expanded SCM to explore the relationship between sports commitment and athlete burnout. The findings suggest that athletes whose commitment is driven by enthusiasm for their sport are less likely to experience RSA, while those who feel obligated to commit are more likely to report feelings of PEE and SD. Additionally, increased *sport enjoyment* is linked to lower levels of burnout, while increased *emotional social support* and *desire to excel (mastery)* are both linked to lower levels of RSA, and increased *other priorities* is linked to higher levels of SD and RSA. Contrary to our hypothesis and prior research (Raedeke & Smith, 2001), we also found a positive relationship between the *loss* and *quantity* subscales of *personal investment* and the RSA and PEE components of burnout respectively. Finally, this was the first study to explore the impact of commitment factors on burnout in men and women playing Gaelic games. As such, it provides unique insight into a playing population that face substantial challenges to commitment associated with their amateur status, significant societal importance and lack of designated off-season (Hughes & Hassan, 2015; Turner & Moore, 2016). These findings have the potential to inform burnout interventions in Gaelic games, and other sports where athletes may face similar challenges.

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