Physical Therapy in Sport 50 (2021) 74–81

Contents lists available at ScienceDirect

Physical Therapy in Sport

journal homepage: www.elsevier.com/ptsp

Original Research

A qualitative investigation into the individual injury burden of amateur rugby players

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ARTICLE INFO

Article history:
Received 12 January 2021
Received in revised form
6 April 2021
Accepted 9 April 2021

Keywords:
Injury
Burden
Rugby
Rehabilitation
Injury monitoring

ABSTRACT

Objective: To examine the individual experiences of injury burden in amateur Rugby players across the onset of injury, rehabilitation, and return to play.
Design: Qualitative.
Setting: Irish amateur Rugby clubs.
Participants: Three male and two female Rugby players who sustained a severe injury that resulted in a time loss of at least 28 days.
Main outcome measures: Semi-structured interviews were used to explore the injury burden experienced during the three phases of injury.
Results: Hierarchical content analysis revealed 36 codes representing individual injury burden, which were clustered into seven themes across personal (emotional reaction; impact on performance or involvement; lack of knowledge; severity of injury and incapacitation) and situational (exposure to others playing; negative experiences with treatment or rehabilitation; societal burden) dimensions.
Conclusions: The findings indicate that individual injury experiences can affect a player's recovery and rehabilitation outcome, potentially extending the injury process and affecting player availability for the team. As such, injury management should focus on alleviating any injury-related burden experienced by players, as well as burden placed on the team, to maximise rehabilitation outcomes.

1. Introduction

Rugby Union, hereafter Rugby, is a globally recognised sport with approximately 9.6 million members across 123 different countries (World Rugby, 2018a). In Ireland, participation rates have risen in recent decades across all age groups (Lunn & Kelly, 2019). As the sport continues to grow in popularity, sport and medical personnel need to recognise the demands of Rugby to ensure safe practice of players. Rugby is a physically demanding sport, requiring frequent high-intensity bouts, such as running, tackling, scrummaging, rucking, and mauling (Roberts et al. 2008).

The high impact forces and repetitive demands in Rugby increase players' risk of injury (Brooks & Kemp, 2011). To establish which injuries are the most common and have the greatest time loss, incidence (number of injuries/1000 player-hours) and severity (days absent) is used. Williams et al. (2013) reported a pooled injury incidence rate of 81/1000 player-hours in professional Rugby matches, equating to one injury every nine matches. For amateur players, incidence of match injuries is lower, with one injury every 16 matches (Yeomans, Comyns, et al., 2018; Yeomans, Kenny, et al., 2018). Strain and sprain injuries had the highest incidence in both professional and amateur Rugby, while fracture and bone stresses had the highest severity among professional players. Severity of training injuries was similar to match injuries, with a mean 26.9 days and 23.6 days absent, respectively (Fuller et al. 2013). Contact events, such as tackling, account for the majority of injuries in Rugby matches (Yeomans, Comyns, et al., 2018; Yeomans, Kenny, et al., 2018). This explains why invasion sports have the highest incidence rates, with the tackle contest carrying the greatest risk of injury (Gabbett & Ryan, 2009).

As Rugby players experience a high rate of injury compared to other invasion sports (e.g., soccer, ice hockey, lacrosse, basketball; Hootman et al. 2007), it is important to implement prevention programmes to reduce injury risk and incidence. The creation of such programmes requires epidemiologic data, such as incidence, nature, cause, and severity, to decrease the number of injuries

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https://doi.org/10.1016/j.ptsp.2021.04.003

(Brooks & Fuller, 2006; MacQueen & Dexter, 2010). The observation and assessment of players and teams are essential in order to mitigate risk. Numerous surveillance studies have been conducted to inform decisions on injury programmes (Fuller et al. 2012). The majority of this research to date has primarily focused on international (Taylor et al. 2011; Moore et al. 2015; Fuller et al. 2016), professional (Brooks et al. 2005; Fuller et al. 2009), and youth (Haseler et al. 2010; Archbold et al., 2017) Rugby. However, the majority of Rugby players participate at an amateur level (World Rugby, 2018b), highlighting the need for focus on such players. Yeomans et al. (2019) implemented an injury surveillance study within Irish amateur Rugby clubs where monitoring practices were established to guide future evidence-based injury prevention programmes. With these data in mind, reducing the risk of injury in Rugby should be a central focus. However, with time and resource constraints, reducing injuries with the highest incidence and severity must be prioritised (Brooks & Kemp, 2011).

Looking at incidence and severity of injury in isolation is not sufficient, as they do not give a comprehensive picture of injury risk (Bahr et al. 2018). Incidence of injury will give an indication of how often the injury occurs, but it may have little to no effect on performance. Severity informs on days missed due to the injury. Although time-loss is the most commonly used definition of injury severity, it does not account for non-time-loss injuries, individual athletes, and loss beyond sports participation (Clarsen & Bahr, 2014; Bahr et al. 2018). Therefore, it is recommended that a cross-product of the two measures is used, known as "injury burden" (Bahr et al. 2018). It accounts for both frequency and severity, thereby giving a clearer picture of the consequences that injury will have on a team (Hägglund et al. 2013). Injury burden, incidence, and severity among amateur Rugby players has been reported for the past three seasons in the Irish Rugby Injury Surveillance (IRIS) Project (The Irish Rugby Injury Surveillance 2020; The Irish Rugby Injury Surveillance Project 2018, 2019). In the 2019–2020 report, concussion carried the highest burden for males (14% of all injuries resulting in an average of 38 days absent), while anterior cruciate ligament (ACL) sprain carried the highest burden for females (14% of all injuries resulting in an average of 361 days absent). However, the formula for injury burden (injury burden = number of injuries X average time lost per injury) is a reflection of the burden on the team, rather than on the individual. Concussion and ACL injuries are regarded as high severity due to time-loss from training and match activities. However, severity of the condition may be overestimated, as some athletes extend the time-loss period to regain full-fitness (e.g., after ACL reconstruction; Bahr et al. 2020). Although the measure for burden can give an insight into the overall impact of an injury, limitations exist when time-loss is used as a measure of severity, as previously mentioned. Players who have a non-time-loss injury, such as overuse or chronic injuries, can still experience burden despite participation being unaffected (Bahr, 2009).

The measure of burden is a reflection of burden placed on the team and is associated with team performance or success, as it relates to player availability (Williams et al. 2016). However, it lacks information on the effects of injury after it has occurred. The individual burden experienced by athletes has been associated with exposure to highly stressful demands, that can significantly alter responses to rehabilitation and injury (Evans et al. 2000; Podlog & Eklund, 2006; Podlog & Eklund, 2007; Rees et al. 2010). Current surveillance studies monitor when, how, where, and why injuries occur, and record when players return to play (RTP). However, sport injuries have numerous consequences beyond absence from sport, including treatment requirements, financial costs, and possible long-term effects on physical and mental health (e.g., impaired musculoskeletal function; Andrew et al. 2010). Evans et al. (2012) examined the various demands (i.e. physical, sport-related, social, financial) placed on team and individual athletes during injury. It was found that athletes experience incapacitation and loss of independence during the onset of injury, lack of progression and setbacks during rehabilitation, and risk of re-injury, loss of fitness, and pressure during RTP. Understanding the various mechanisms that affect athletes during injury can facilitate recovery. Biopsychosocial models are commonly used by clinicians to address factors that affect athletes during injury and, ultimately, RTP (Ardern et al. 2016). The Integrated Model of Psychological Response to Sport Injury and Rehabilitation Process (IMPRSIRP; Wiese-Bjornstal et al. 1998) provides insight into an injured athlete's experience from a physical, psychological, and social perspective. Qualitative investigations of athlete's experiences during injury have been carried out in Rugby (Carson and Polman 2008, 2010; Howe, 2001; Liston et al. 2006; Vergeer, 2006), furthermore in soccer and Australian Football (Hudson et al. 2012; Norlin et al. 2016). These data are crucial to informing injury prevention and safe practices in sport. Gabbett (2001) examined the direct and indirect cost of Rugby injuries, with 55–80% of players reporting increased medical costs, loss of income, and decreased productivity. Qualitative analysis may help unpack the individual variance of the injury process, thereby facilitating an open understanding of the injured athlete's subjective experiences (Johnston & Carroll, 1998). Such a detailed analysis may develop an understanding of individual burden experienced by players and contribute towards strategies to reduce injury burden. Against this backdrop, the purpose of this study was to investigate the individual injury burden of Irish amateur Rugby players and to explore the differences in experiences of burden across the three phases of injury: onset of injury; rehabilitation; and, RTP.

2. Methods

2.1. Participants

Participants were recruited for this study on a voluntary basis. An introductory email including an information sheet and informed consent form was circulated to the injury recorders (e.g., physiotherapists; doctors) of the amateur Rugby clubs involved with the IRIS Project (Yeomans et al. 2019). The inclusion criteria for the study were players who sustained a severe injury which resulted in a time-loss of more than 28 days from training or matches (Fuller et al. 2007). Three male and two female Rugby players (mean age = 23.2 years; range = 21–30 years) agreed to take part in the study (Table 1). Ethical approval for this study was granted by the University Education and Health Sciences Research Ethics Committee.

2.2. Procedure

A qualitative design was utilised to explore Rugby players' experiences of injury burden as it provides insight into the perceptions and opinions of those who have first-hand experience with the topic of interest (Creswell, 2007). Participants were provided with information on the type of questioning to enhance recall. To prepare the interview questions, an organisational chart was created to collate possible sources of injury burden outlined in the literature (Fig. 1; Wiese-Bjornstal et al. 1998; Walker et al. 2007; Podlog et al. 2011; Evans et al. 2012; Forsdyke et al. 2016). This framework was developed by adopting a stimulus-based conceptualisation of burden, as opposed to a response-based (Fletcher *et al.* 2008). This ensured the cause of burden was identified and allowed participants to openly discuss individual responses during the interview. The chart was followed to create questions for the

Table 1
Participants' personal, playing, and injury information.

Participant	Age[a]	Sex	Position	Injury	New/Recurrent	Environment	Occurrence	Injury Severity (days)	Surgery Required
1	21	F	Prop	Syndesmosis	Recurrent	Training	Post training	210	Yes
2	24	M	Scrum half	ACL rupture	New	Match	40–60mins (3rd quarter)	327	Yes
3	30	M	Lock	Reoccurring lumbar disc issue	NR	Match	40–60mins (3rd quarter)	Ended career	No
4	20	F	Hooker	Ankle ligament sprain	NR	Match	0–20mins (1st quarter)	187	Yes
5	21	M	Prop	Acromioclavicular joint sprain	Recurrent	Training	During drill	31	No

[a] Age of participant when injured (expressed in years); ACL, anterior cruciate ligament; F, female; M, male; NR, not reported.

semi-structured interview guide (see Supplementary File 1), which facilitates in-depth discussion with participants, as well as probing, clarification, and flexibility (Smith & Caddick, 2012). Based on existing research of athletes' responses to injury, the interview guide contained three main sections that were based on the phases of injury: onset of injury; rehabilitation; and, RTP (Evans et al. 2012; Hare et al. 2008; Wadey *et al.* 2012). The time period for each phase of injury was clearly defined to participants, as outlined in Supplementary File 1. This was preceded by a list of introductory questions based on the participants' involvement in Rugby and injury experience. Probes were used throughout the interview for elaboration and clarification (Patton, 2002). The interviews ranged from 14 to 26 min and were recorded.

2.3. Data analysis

The interviews were transcribed verbatim. The transcribed material was analysed using hierarchical content analysis, a widely used approach in qualitative research (Sparkes & Smith, 2014). Specifically, data analysis involved five stages (Table 2). All extracted data from transcripts were inputted into Microsoft Excel™ for analysis (see Supplementary Files 2, 3, and 4). The frequency of reported codes by the participants were calculated. Once thematic analysis was complete, data were extracted and translated into table form.

3. Results

Results revealed 36 codes which represent individual burden experienced by the participants during injury. These codes were clustered into seven themes across two general dimensions, namely personal and situational factors (Table 3).

3.1. General dimension one – personal factors

3.1.1. Theme one – emotional reaction

Participants reported a range of different emotions during the phases of injury. The most common reaction described was the negative reaction during onset of injury, including frustration, stress, and disappointment. For example, the injury affected Participant One as they "*couldn't actually play Rugby, which was quite frustrating*." Participant Four noted how stressful the onset of injury was: "*it had a huge effect on my mental health, say, my hair and everything started coming [out] …*" Different emotions arose during rehabilitation and RTP. It was common to fear experiencing pain during rehabilitation and succumbing to re-injury on RTP. Participant Four expressed the fear of making tackles initially during matches: *"I use to kind of look for someone a little bit weaker … and stand beside someone who's a little bit of a better tackler, so they can make [the] hit for me."* Only Participant One acknowledged having a lack of confidence after RTP: "*every time I go play a match, it's in my head that I have had [the] op on my ankle.*"

3.1.2. Theme two – impact on involvement or performance

Missed opportunities were the most frequently reported burden in this theme, being reported by all participants at least once during the onset of injury or rehabilitation. For example, Participant Five stated: *"I missed out on a few weeks of training and obviously couldn't play. I missed out on trying to prove myself."* Returning to pre-injury performance levels was reported by participants as a burden during rehabilitation and RTP. Participant One explained: "*it's not just a matter of going back onto the pitch playing. You know, you have to be strong enough and powerful enough … to actually go back playing Rugby."* Although external pressure was evident throughout each phase, internal pressure created the greatest burden on RTP: to *"play how you were playing before you were injured."* Being injured affected the participants' physical capabilities and performance, with fitness levels *"decimated"* according to Participant One. Lower limb injuries tended to affect speed and *"leg drive"*, as mentioned by Participant Four, while a shoulder injury prevented Participant Five from upper body training.

3.1.3. Theme three – lack of knowledge

All participants reported "*not knowing*" what was going to happen following the onset of injury. Participant One explained: "*I didn't really think it was serious because I was able to play with no pain. So, I thought it couldn't be that bad.*" Participants Three, Four, and Five described the anxiety regarding *"the ramifications of it down the line."* Lack of knowledge was not mentioned during rehabilitation or RTP.

3.1.4. Theme four – severity of injury and incapacitation

During the onset of injury, all participants reflected on their initial struggles with daily activities, transportation, and pain. Four participants (One, Two, Three, and Four) had to use a mobility aid, which sometimes led to further difficulties: *"I'd never been on crutches before. So, my shoulders were quite sore all the time trying to hold me up"* (Participant One). The severity of Participant Three's injury caused complete incapacitation for two weeks: *"[I] couldn't leave the house for two weeks. I had to, like, physically use my hands and worktops and what-not to get around the house."* Participant Three compared the current injury to previous injuries of shorter duration: *"if speaking about [a] broken arm, you know, you're probably looking at six to eight weeks … With the back … there's no definitive answers to how long it's going to take and that was mind numbing."* Participant Three's competitive playing career ended due to the severity of the injury.

3.2. General dimension two – situational factors

3.2.1. Theme one – exposure to others playing

All participants reported the burden of being exposed to teammates playing Rugby during the onset of injury and/or rehabilitation. Participant Two recalled: *"I found it tough when I went and … watched training … when you're aware of it more, that's when you start missing it."* Comparisons were made with other teammates, with participants being *"behind lads on the training regime"* and

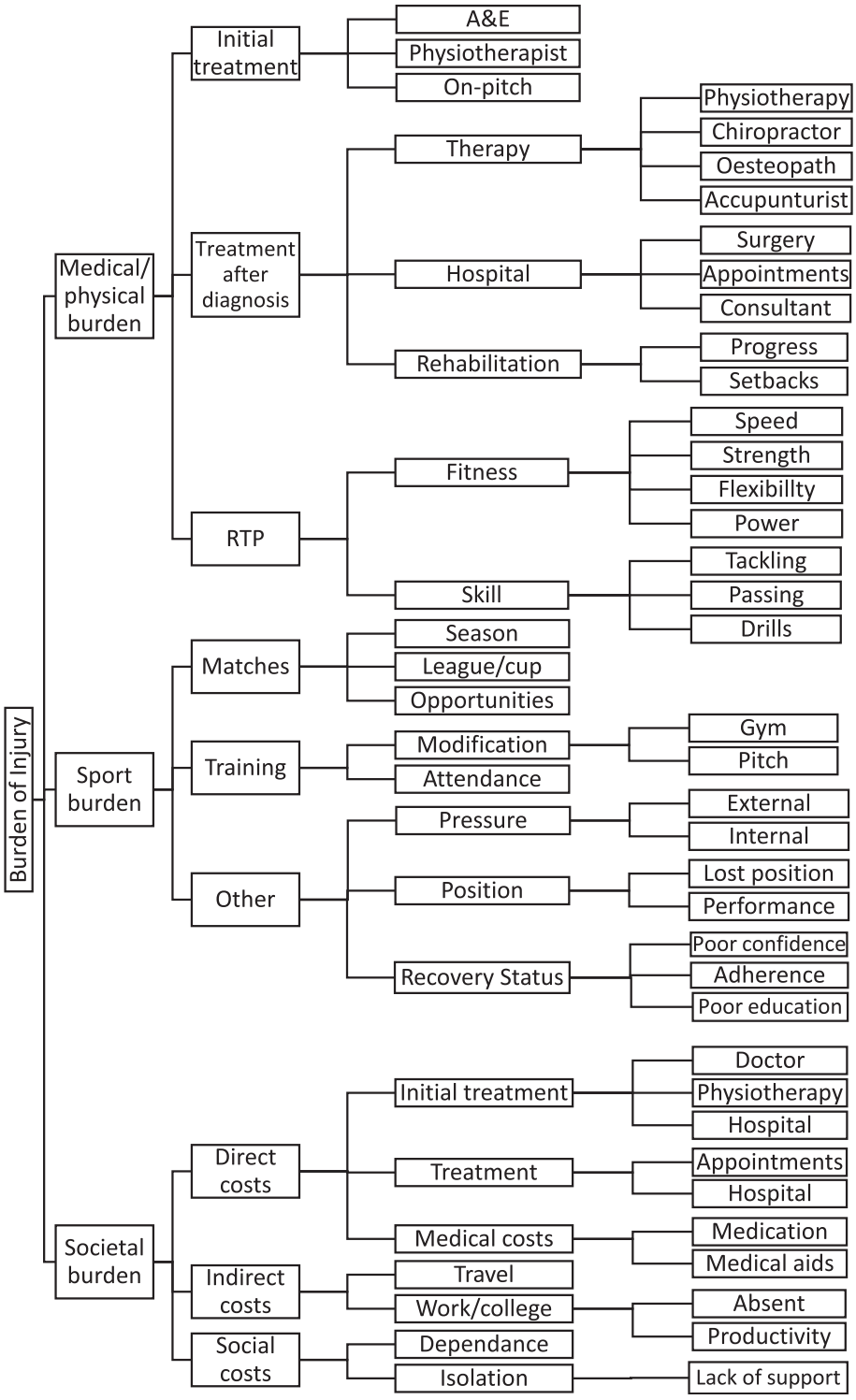

Fig. 1. Organisational chart to establish possible sources of injury burden.

weaker players getting *"into that starting position."* However, Participant Three reported feeling *"lucky"* to be able *"to call on people"* during rehabilitation. Participant Four made comparisons with un-injured teammates on RTP: *"everyone … has been playing all the time and they are all just so much faster."*

3.2.2. Theme two – negative experience with treatment or rehabilitation

During the onset of injury, the participants' burden came from diagnosis or awaiting treatment. Participants One, Two, and Four were incorrectly diagnosed initially: *"I think I was waiting, maybe*

Table 2
Data analysis process.

Stage	Task	Notes
1	Interview transcripts read repeatedly.	Ensured content familiarity.
2	Searched for meaning units and provisional codes assigned.	Raw data codes represented one piece of information within each phase of injury.
3	Codes clustered into meaningful categories (themes) that share similar characteristics.	First order themes represent the burden experienced by the participants. Themes grouped into general dimensions.
4	Cross-checking carried out.	Ensured themes represent the participants' transcripts.
5	Confirmation obtained from "critical friend".	Ensured trustworthiness and credibility (Day & Schubert, 2012). Critical friend was blinded to study aims. Encouragement of alternative interpretations of findings to ensure best representation of the participants' experiences of burden.
6	Member checking for credibility and accuracy of data.	Interpretations of participant's experiences were verified as accurate representations (Wagstaff et al. 2012). Participants confirmed accuracy of transcripts.

Table 3
Factors that contributed to participant's experience of burden during injury, plus the number of participants experiencing specific code for each injury phase.

General Dimension	Theme	Code	Experience of Burden[a]		
			Onset	Rehab	RTP
Personal Factors	Emotional Reaction	Fear	–	3	–
		Frustration	1	–	–
		Stress	1	–	–
		Disappointment	1	–	–
		Lack of confidence	–	–	1
	Impact on Performance or Involvement	Missed opportunities	4	4	–
		Return to pre-injury level	–	3	4
		Risk of re-injury	–	–	5
		Internal pressure	–	1	4
		External pressure	1	1	2
		Lost position on team	–	1	2
		Loss of fitness/skill	–	2	–
		Inability to perform	–	1	–
	Lack of Knowledge	Lack of knowledge on severity	4	–	–
		Lack of knowledge on injury	2	–	–
	Severity of Injury and Incapacitation	Mobility aid	4	–	–
		Physical pain	3	–	–
		Incapacitation	2	–	–
		Injury severity	1	1	–
Situational Factors	Exposure to Others Playing	Watching teammates	4	1	–
		Comparing progress	–	2	1
		Not playing Rugby	1	–	–
	Negative Experience with Treatment or Rehabilitation	Rehabilitation setbacks	–	4	–
		Diagnosis	4	–	–
		Modifying exercises	–	3	–
		Waiting for treatment	2	–	–
		Length of rehabilitation	–	2	–
		Complication with surgery	–	1	–
		Repetitive rehabilitation	–	1	–
		Lack of progress	–	1	–
	Societal Burden	Direct costs	2	4	–
		Isolation	2	3	–
		Indirect costs	3	1	–
		Relying on others	3	1	–
		Effect on daily routine	1	2	–
		Unwanted attention	1	–	1
Total[b]			20	22	8

[a] Number of participants experiencing burden during each phase of injury.
[b] Total number of experiences of injury burden for each phase.

four weeks, I had been down with the wrong injury completely, which kind of made things worse" (Participant Four). Participant Four's strength deteriorated during this delay: *"my calf was a lot weaker than it should have been had I had the surgery earlier."* During rehabilitation, negative experiences included setbacks, problems with exercises, and lengthy or repetitive rehabilitation. Participant Three explained how overestimating *"my recovery ability, thinking that I was much younger, much stronger than I was … led to the setbacks."* Modifying exercises burdened the participants during rehabilitation: *"it was obviously difficult because I was dealing with different lifts and learning new stuff as well"* (Participant Five).

3.2.3. Theme three – societal burden

Societal burden encompasses all costs related to injury (i.e. direct costs; indirect costs; social costs; Hespanhol et al. 2015). No participant had to cover the payment of all direct costs because of

support received from medical insurance or Rugby clubs. Some of these direct costs, however, were not covered by insurance, including MRI, medication, and excess costs. The primary indirect cost was absenteeism from work/college, with Participant Three "*out of work for three weeks*", while Participant Four "*stopped working throughout*" rehabilitation and "*had no income*." Being injured led to social costs: "*you just want to be on your own and just want to put your head down*" (Participant One). Four of the participants (One, Two, Three, and Four) reported relying on others due to lack of mobility: "*10 days after surgery I couldn't drive … you are relying on other people to do a lot of stuff*" (Participant Two). Other less frequently mentioned burdens included effects on daily routine and unwanted attention on RTP.

4. Discussion

This study was the first to explore the individual injury burden of Irish amateur Rugby players, thereby providing an insight into the physical, emotional, and behavioural responses during the onset of injury, rehabilitation, and RTP. The results showed several emerging themes that affect the players at different stages of rehabilitation. The highest burden was experienced during the onset of injury and rehabilitation. The experiences of burden when recovering from a severe injury were consistent among participants, particularly the impact it had on performance or involvement. Podlog and Eklund (2006) similarly found athletes who return from a severe injury share common fears and concerns. Consistent with previous research, different personal and situational factors are experienced by injured athletes at different phases of the injury process (Evans et al. 2000; Johnston & Carroll, 1998). As suggested by Kamphoff et al. (2013), variation exists in the individual challenges faced by athletes, with the IMPRSIRP providing support for this approach (Wiese-Bjornstal et al. 1998).

4.1. Onset of injury

During this phase, injury severity and incapacitation were prominent themes among participants, which are consistently highlighted in sport injury research (Hudson and Murphy 2012; Clement et al. 2015). Initially, participants struggled with getting around and adjusting to daily life. The IMPRSIRP (Wiese-Bjornstal et al., 1998) lists injury severity as an important factor that influences recovery, as it informs the athlete's cognitive appraisal and, therefore, can affect emotional and behavioural responses (Hess, 2015). Misdiagnosis and awaiting treatment generated negative reactions among participants. Certain emotional reactions (e.g. frustration) are associated with initial response to injury and can undermine adherence during rehabilitation and RTP (Brewer *et al.* 2000; Madrigal & Gill, 2014). A notable finding that emerged from this study was that lack of knowledge around injury severity and potential short-/long-term effects is common during the onset of injury. Providing support or educating players may enhance their knowledge of the injury process and enable effective coping (Lynne & Hardy, 2002; Evans et al. 2012). Almost three-quarters (71%) of Irish amateur Rugby clubs provide educational material on topics such as nutrition, gym technique, and load management (Yeomans, Comyns, et al., 2018; Yeomans, Kenny, et al., 2018). Perhaps more frequent education is needed on response to injury, as well as strategies for injury prevention, to allow for effective coping and recovery.

4.2. Rehabilitation

The rehabilitation phase mainly involved burden related to setbacks and decrements in performance/fitness. Previous research has indicated that players endure various demands during the rehabilitation, such as setbacks, slowness of progress, and repetitiveness of exercises (Evans et al. 2000; Gayman & Crossman, 2003). Rehabilitation setbacks and loss of fitness/performance can adversely impact the player because negative thoughts, emotions, and/or behaviours can hinder rehabilitation outcomes (Wiese-Bjornstal et al. 1998). For example, the player may not be making significant progress during rehabilitation, resulting in anger and disappointment. Those emotions will dictate the player's cognitive appraisal of the injury and can negatively affect the player's engagement with rehabilitation. Severe injuries can result in a more distressing appraisal and reaction, potentially resulting in more setbacks for an athlete (Smith et al. 1990). This was particularly evident for Participants One and Four, who required surgical intervention and reported numerous setbacks and overall loss of strength, speed, and fitness. Goal-setting is important during rehabilitation due to its positive effects on psychosocial and physical healing (Arvinen-Barrow et al. 2014). Specifically, setting short-term goals has the potential to focus the player's effort, consequently improving adherence, emotional responses, and RTP outcomes. Missed opportunities and societal burden were common during both the onset of injury and rehabilitation, as similarly found by Evans et al. (2012). Although the participants had to pay some direct costs, assistance from insurance or Rugby clubs eased the financial burden to a degree. Financial assistance and social support are perceived as beneficial during recovery and, thus, enable effective coping with the stress endured as a consequence of injury (Ford & Gordon, 1999).

4.3. RTP

The RTP phase had the least number of experiences of individual burden. Trying to return to pre-injury performance levels was challenging for participants. Hudson and Murphy (2012) reported similar results in the Australian Football League, with players reporting concerns about match fitness, competitive ability, and skill. The risk of re-injury was the only factor mentioned by all participants, which is often associated with fitness-/performance-related concerns (Podlog & Eklund, 2007). The current study revealed that participants were hesitant on RTP, particularly during tackles. Lack of confidence and not feeling "100%" were frequently reported reasons to fear re-injury. It is crucial for players to be fully rehabilitated and have physical competence on RTP to prevent re-injury (Carson & Polman, 2012). Communication and collaboration between players, coaches, and medical staff during RTP facilitates physical and psychological readiness.

Although most results showed that individual burden was phase-specific, two factors were consistent throughout the entire injury process: pressure and exposure to others playing. The IMPRSIRP explains how pressure can affect the players' thoughts and behaviours by undermining motivation, performance, and emotional responses (Wiese-Bjornstal, 2010). Participants were exposed to teammates playing throughout injury while attending training/matches. Watching teammates enjoying Rugby and progressing on the field while injured can have a detrimental effect on rehabilitation outcomes due to the heightened perception of loss (Evans et al. 2012; Gould et al. 1997). Although previous research has highlighted the beneficial effects of returning to a team environment during rehabilitation (e.g., providing motivation and social support; Podlog & Eklund, 2006; King et al. 2010), the effectiveness of received support is dependant on the type of support, the timing of support, and the situation it is provided in (Rees & Freeman, 2012). Providing social support can enhance positive expectations of a rehabilitation outcome (Corbillon et al., 2008), but individual consideration is needed to optimise support for players.

5. Limitations

The retrospective qualitative approach in the current study heavily relies on recall of injury experience, as the injury periods ranged from August 2018 to September 2019, with data collected in January 2020. Future research should conduct interviews during the injury process to enhance accuracy of results (Johnson & Christensen, 2019). A second limitation of this study was the small sample size, which can affect transferability. As previously mentioned, using time-loss as a measure of severity underestimates the burden of chronic/overuse injuries. Future research should consider the definition of injury (e.g. using "medical attention" or "all complaints") to ensure a greater number of injuries, including overuse injuries, are captured.

6. Conclusion

In summary, the results of this study highlight the individual burden experienced by amateur Rugby players throughout injury, whereas previous research has focused on the burden placed on teams (Bahr, 2009; Hägglund et al. 2013). The findings reveal how these individual experiences can affect recovery and rehabilitation outcomes, potentially extending the injury process and, thus, unavailability for the team. This has important implications for injury management and facilitation of RTP, such that reducing burden needs to consider any injury-related burden players experience, as well as burden placed on the team. Furthermore, the design and implementation of injury intervention programmes should focus on supporting players to effectively cope with stressors experienced during injury. Educating players and providing social support is recommended to maximise injury rehabilitation outcomes in amateur Rugby.

Ethical approval

Ethical approval for this study was granted by the University of Limerick Education and Health Sciences Research Ethics Committee. All participants provided informed consent.

Funding

This work was supported by the Irish Research Council [GOIPD/2020/424] and Education and Health Sciences Succeed and Lead Programme at the University of Limerick.

Declaration of competing interest

None declared.

Acknowledgements

The authors would like to acknowledge with considerable gratitude:

- Dr Ian Kenny for his support and contribution to this study.
- The members of the Irish Rugby Injury Surveillance Research Team and the Irish Rugby Football Union for their support.
- The Irish Research Council [GOIPD/2020/424] and Education and Health Sciences Succeed and Lead Programme at the University of Limerick for their financial support.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ptsp.2021.04.003.

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