

Relative Age Effect In Female Club and University Hockey

Players: A Quantitative and Qualitative Investigation

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Abstract

Relative age effect is shown to exist in sport and is associated with the cut off dates for junior competition. However there is some debate as to whether the phenomenon exists in non-elite levels of sport. The purpose of the current investigation was to analyse the birth distribution of club and university level female field hockey players and to explore the lived experiences of players born in different halves of the school year. There were 74 (57.8%) out of 128 participants who were born in the first half of the school year. A chi square goodness of fit test revealed that this was significantly different to the expected 48.5% based on national birth statistics for England and Wales. Eight semi-structured interviews were conducted with players, four of which were born between September and February and four born between March and August. Analysis of these interviews revealed that the relative age effect was not the main source of attrition motive experienced by the players. Instead, relative age effect exacerbates sports attrition motives, with the players born in the second half of the year reporting more negative experiences of selection than the other four subjects born in the first half of the year. General implications suggest coaches, parents and selectors should become aware of the relative age effect when identifying talented players and developing and nurturing that talent.

1.0 Introduction

1.1 Background Information

The relative age effect has been shown to have an influence on many aspects of life, including lifespan. Doblhammer and Vaupel (2001) established that month of birth influences adult life expectancy and found that adults born in autumn (October-December) live longer than those born in spring (April-June). Another aspect of life influenced by birth month is academic attainment (Bell and Daniels 1990). This research found overwhelming evidence that in primary years of education, the summer born children do not perform as well as autumn born children. Similar differences have been acknowledged relating to occupation (Smithers et al., 1984), and personality (Smithers and Cooper, 1978). All these show the negative implications of an age disadvantage. Relative age, for the purpose of this study has been defined as the age difference between female hockey players born in the first half (September-February) and second half (March- August) of the same academic year.

It is also important to differentiate between the terms ‘relative age effect’ and ‘season of bias’ as this has been a major problem with recent studies into the relative age effect using these terms interchangeably. For example, Edgar and O’ Donoghue (2005) conducted an investigation that focused on the relative age distribution for elite tennis players. However incorrect terminology was used throughout the study. The correct terminology for the causation of the findings should have been referred to as the relative age effect. Season of birth effects are hypothesised to have developed from environmental factors affecting the foetus, which in turn effect lifespan and

development (Torrey, Miller, Rawlings, and Yolken, 1997). Such environmental factors include the amount of sunlight, the availability of fresh fruit and vegetables, as well as the influenza hypothesis. Relative age effect on the other hand is associated with different stages of maturation in cohorts organised by an arbitrary cut off date (Joll and O' Donoghue, In Press). For example the junior competition year has a cut off date used for the purposes of placing junior athletes into age bands.

The relationship between relative age and participation in sport has been the subject of a number of reports. Studies examining birth date distribution have found evidence of skewed season of birth patterns in ice hockey (Boucher and Mutimer, 1994), professional soccer (Simmons and Paull, 2001), major league baseball (Thompson, Barnsley and Stebelski, 1991), Grand Slam singles tennis (Dudink, 1994; Baxter-Jones, 1995; Edgar and O'Donoghue, 2005) and most recently, netball (Joll and O'Donoghue, In Press) with more participants being born in the first six months of the junior competition year than in the second six months. (Edgar and O'Donoghue, 2005).

A number of factors have been suggested as explanations for relative age effect in sport. Musch and Hay (1999) have identified some of the theoretical explanations.

These include:

1. Biological and maturation factors associated with chronological age. These produce a relative age effect when combined with cut-off dates for junior age group competition in sport.
2. Environmental factors during early life, such as climate.
3. Socio-cultural influences such as different patterns of birth between different socio-economic groups.

4. Psychological factors, with some personality traits being associated with particular seasons of birth.

Moreover there is evidence that the cut off date for the junior competition is a major factor explaining the relative age phenomenon (Musch and Hay, 1999). In soccer it is indicated that those players born early in the junior competition year have a greater chance of becoming professional soccer players than those born late in the competition year (Musch and Hay, 1999; Simmons and Paull, 2001). This issue was initially exposed by Musch and Hay (1999) who established that when the cut off date for junior soccer competition in Australia was moved from January to August, it eventually produced a corresponding shift in the season of birth distribution of soccer players.

The effects of the relative age difference can be physical, physiological and psychological (Helsen, Hodges, Van Winckel and Starkes, 2000a). If the effects were mainly physical, then it would be expected that the level of skew in the birth date distribution of successful players would reduce as players enter senior ranks. This is due to the fact that those born early in the junior competition year would lose their relative age advantage over later born players once the players were fully mature seniors. However, if the effects of the relative age effect were mainly psychological, then one would expect a more pronounced skew in the season of birth distribution of senior players than in junior players due to players born late in the junior competition year dropping out of the sport before reaching the senior ranks. Another factor that might amplify a skewed birth date distribution is the Pygmalion effect (Rejewski *et al.*, 1979). This is where early maturing players of limited talent are perceived to be

talented by parents, coaches and selectors. Abbott and Collins (2004) also recognised the role of physical maturity associated with relative age within the selection process and talent development. This can lead to selection for higher levels of competition, better quality coaching, the support of sponsors and consequential improvement due to nurturing rather than talent. This can be viewed as a self-fulfilling prophecy.

Attrition and participation in sport is an ever-increasing issue and therefore it is important to distinguish the motives for participation and discontinuation (Klint and Weiss, 1986). Klint and Weiss (1986) highlighted major reasons explaining withdrawal from sport, including pressure of competition, conflict with coaches, lack of progress, and lack of fun. Gill *et al.* (1983), on the other hand, identified eight categories of participation motives; including achievement/success, team, fitness, energy release, situational, skill development, affiliation and fun.

1.2 Need for the study

Most previous investigations of relative age effect in sport have been quantitative in nature and therefore have never explored players' awareness of the disadvantages of being the youngest in their year group. Nor have they asked the players themselves whether, and in what ways, they are aware of any differences associated with their performance and sporting career that may be attributable to relative age within a year cohort. The lack of qualitative data in this area is a weakness and therefore needs to be rectified. Many investigations have hypothesised about the nature of relative age effects. However, the mechanisms underlying these hypotheses need to be studied. This study will investigate experiences of psychological factors, the attrition of motives, family and coach support, as well as the selection process. Given the

potential involvement of psychological and sociological factors in participation and attrition, there is a clear role for the qualitative research into the career experiences of hockey players born in different parts of the year.

1.3 Purpose of Study

This study is composed of two complementary sub-studies. The purpose of the first investigation is to analyse the birth date distribution of participating female hockey players compared with the national birth date distribution of relevant age groups. The purpose of the second investigation is to explore the lived experience of hockey players born in different parts of the year in order to gain an in-depth understanding of the relative age effect.

1.4 Scope

The scope of this investigation concentrates on the lived experiences of 8 club level female hockey players. The information (data) was gathered through semi-structured interviews. A further 128 club and university female hockey players were asked to provide their date of birth for the quantitative section of the investigation.

1.5 Limitations

The limitations of the study include time constraints. Due to the limited time available, it was only possible to interview eight subjects in depth, as transcribing interviews is a lengthy process. The interview technique is a subjective process where judgement may be based on first impression. There is also the assumption that the players will be open and honest with the questions asked. Linked to this are the issues of self-report and social desirability effect or image management. These theories

basically state that people don't want to look/feel foolish and so suggests that the participants may conceal the full truth.

3.0 Methodology

3.1 Introduction

The research design followed a two-part study, essentially utilising quantitative and qualitative methods in a complementary way. Silverman (1997) stated that the methods used by qualitative researchers exemplify a common belief that they can provide a 'deeper' understanding of social phenomena than would be obtained from purely quantitative data. However, initially a limited quantitative approach was selected for the purpose of this study, as quantitative research enables the researcher to produce objective factual data and allows for generalisation to a larger population (Thomas and Nelson, 1996). The justification for utilising a complementary study derives from Silverman (2001) who supports the combination of qualitative and quantitative research methods, as both methods possess contrasting strengths and weaknesses. It is therefore conducive to use facets from both paradigms which results in a stronger research design and enhance validity and reliability

3.2 Quantitative Research

3.2.1 Subjects

The subjects for the quantitative data were members of UWIC Hockey and Chippenham Ladies Hockey Club (n =128). The dates of birth of all members during the 2007-2008 regular season were collected using a manual recording form.

3.2.2 Procedure

The percentage of hockey players born in each month of the year was calculated. The specific year was required for comparison between the hockey players' birth months and the distribution of female live births in England and Wales. The frequency

distribution of the birth months of the hockey players was compared to the national distribution of live female births in England and Wales, which was taken from the national figures (Office of National Statistics) using the Chi-square goodness of fit test.

3.2.3 Data analysis

The distributions of birth dates were determined on the basis of applying cut off dates. This investigation utilised the school year cut off dates as this is generally where hockey is first experienced. Therefore, the players' dates of birth were classified into halves (September-February) and four quartiles (Q1 – September, October and November; Q2 – December, January and February; Q3 – March, April and May; Q4 – June, July and August).

The oldest subject was born in 1957 and the youngest was born in 1994. Previous research has shown changes in national birth month distributions between 1945 and 2000 (Joll and O'Donoghue, In Press). Therefore, the expected birth month distribution had to be based on the national birth month distribution during the different years in which the players were born rather than using one year which could not be assumed to be representative. The percentages of live female births in England and Wales that occurred in each calendar month of each year from 1957 to 1994 were obtained from published national statistics (Office of National Statistics, 2005). Because different numbers of subjects were born in each year (the modal year of birth being 1987), it was necessary to calculate the expected month of birth distribution so that figures from each calendar year were weighted according to the number of subjects born in that year.

Once the weighted birth of month distribution was calculated in percentage form, the expected frequency of players born in each month was determined by scaling up by a factor of 1.28 as there were 128 participants.

Three chi square goodness of fit tests were used to compare observed and expected frequency distributions. The purpose of chi square goodness of fit was to determine whether or not the month of birth distribution was significantly different to a theoretical expected distribution. The first compared the frequencies of the 12 calendar months using 11 degrees of freedom, the second compared the frequencies of the 4 three month quarters (September-November to June-August) using 3 degrees of freedom and the third compared the frequencies of the 2 half years (September-February to March-August) using 1 degree of freedom.

3.3 Qualitative Research

The qualitative nature of the investigation results in detailed and in-depth data being obtained. The qualitative analysis explored the lived experiences of female hockey players throughout different stages of their sporting career and allowed reflection on junior and senior experiences of the relative age effect. This section identifies and justifies the techniques used to collect and analyse the data.

3.3.1 Subjects

Subjects were selected from club level female hockey players who participated in the quantitative data collection. Eight players were interviewed with the intent to recognize their personal experiences of hockey and any reasons for discontinuing. The eight subjects were purposely selected (Patton, 1990) in relation to their birth month. Four subjects had their birth date early in the junior competition year (September to

February), while the other four subjects were those born late in the junior year competition (March to August).

3.3.2 Interview Design

In order to gain the in-depth data required, semi structured, one to one interviews were conducted, which allowed for conversational, two-way communication. Patton (1987) suggested that qualitative interviews should be open ended, natural, sensitive and be clear to the interviewee. The interview questions were based on key themes that had been highlighted within the literature. Furthermore the interview was split into three distinct stages; stage (1) experiences between the ages of 12-15, stage (2) 15-18 and stage (3) 18 to current day. The stages and questions were specified in advance of the interviews. Moreover an interview guide was produced after an extensive review of the literature. The interview guide presumes that there is common information that should be obtained from each person interviewed (Patton, 1990). It provides a framework to ensure all topics are covered, helps sequencing of questions and assists decision-making about which information to pursue in greater depth (Patton, 1990). It is important to note that the order in which the questions are asked could vary. The interviewer is required to adapt specifically to each of the respondents (Britten, 1995).

3.3.4 Pilot Study

A pilot study was carried out to ensure validity and reliability. This only involved one subject. This process highlighted minor problems relating to the interview procedure and subsequent analyses, which needed to be identified and rectified (Thomas and Nelson, 1990). The pilot study allowed the researcher to become accustomed with the

audio equipment and gain experience of the interviewing technique, thus enabling the researcher to become more proficient in the ability to conduct the interview. Thompson and Nelson (1996) stated that the only way to become competent is through hands on experience. In addition, the pilot provided the opportunity to estimate the amount of time that needed to be allocated for each interview. The supervisor was present to give post interview advice on the interviewing process. As a result of the pilot, slight alterations were made to the interview guide. This included the avoidance of leading questions that influenced the direction of the responses and also the need for further probe question to enhance the richness of data was acknowledged.

Following the interview, the recordings were listened to in order to ensure recording quality. The tape recording was transcribed, which allowed familiarisation with the process as well as an awareness of the duration. The information gained was deemed sufficiently valuable such the pilot participant was actually used as one of the eight interviewees.

3.3.5 Interview Procedure

At the outset it was crucial to attain the interviewees' consent in order to conduct the interview. Therefore, prior to the interview, all subjects completed a voluntary informed consent form. This provided explanations of the nature of the study and the fact that all interviews were recorded and reproduced solely within the body of the dissertation. Confidentiality and anonymity was also assured. Times and dates were then arranged for the interview to take place. The interview duration varied for each participant and ranged from 30 to 45 minutes. They took place where the subject felt most at ease.

The researcher referred to the interview guide throughout the interview, therefore allowing the interview to run smoothly and effectively. Interviews were recorded using an Olympus Pearlorder S713 Dictaphone.

3.3.6 Transcript Analysis

The recordings of each interview were reproduced as text via full verbatim transcription. This process was extremely time-consuming (Gilbert, 2001) resulting in 5-7 pages of interview transcript per interviewee. The validation and credibility checks were an ongoing process and as such each transcript was checked by re-listening to the recordings and re-reading the transcripts. Furthermore, to provide an independent analysis, the supervisor read the transcripts to check that the author and supervisor found similar conclusions emerging from the interviews. This independent check allowed for any discrepancies regarding the analysis process to be identified. Differences and contrasts in theme interpretations were acknowledged. Ultimately the researcher and supervisor compared their findings for each theme. This provided consistency, as there was agreement with the majority of the findings, thus demonstrating the reliability of the data.

Following this initial step, detailed examination of the interview transcripts occurred. The method used for analysing the data obtained was inductive in nature. This procedure organised raw data into meaningful categories, which emerge directly from the participant's own words (Scanlan, 1991). Each interview transcript was read carefully highlighting any key themes, which emerged within the text. Within identified themes, comparisons and contrasts between individuals were made until all

concepts had been noted. Highlighter pens were used for this process. Each colour represented a specific theme. The transcripts were highlighted when evidence supporting a particular theme transpired. The objective of the data analysis was to organise the raw data into set categories that describe the phenomenon under study (Boyatzis, 1998), in this case the relative age effect. Additionally, themes that were not anticipated at the beginning but emerged, such as the effect of negative support, were documented. Evidence contradicting the emerging theory was identified during a process known as negative case selection. This allowed the theory to be altered until it was consistent with all of the interview data.

3.3.7 Reliability and Validity

Reliability and validity are crucial elements in all studies. A reliable study is one that shows consistent results containing no errors (Heiman, 1995). Results have little significance if a replicated study performed at a later date or with a different sample of participants, produces inconsistent findings (Thomas and Nelson, 1990). As such in this study, in order to maintain reliability and validity, the following was implemented: -

- Pilot study assured reliability as it allowed the researcher the opportunity to become accustomed to using a diaphone and have the experience of interviewing.
- All interviews were recorded
- The same researcher conducted all 8 semi structured interviews
- The interviews were structured, with the interview guide at hand throughout all interviews.

- All interviews were conducted in the same place, ensuring consistency and the avoidance of distraction.
- Efforts were made to form a relationship between researcher and interviewee, which helped openness and truthfulness of participant answers.
- Questions were not leading or influential (Thompson and Nelson, 1990)
- Independent checking was performed. Transcripts were checked by the researcher and supervisor.

There are different types of validity, one of which is known as content validity. This is the extent to which questions represent the issue they are supposed to measure (Kumar, 1996). Insufficient validity would mean that results from this study would not accurately reflect the lived experiences of female club and university level hockey players. Another is that of the external validity of a study, which refers to whether the results can be generalised beyond the particular study sample (Nelson and Thomas, 1990). The findings for this study can be generalised to other female hockey players.

4.0 Results

4.1 Quantitative Findings

Figure 1 shows that a uniform expected birth distribution cannot be assumed. Prior to 1980, there were more female live births each year in Q3 than any other quarter. However, this trend has now changed and there have been other noticeable changes since 1957 with the fewest live female live births occurring in Q2 since 1976, despite the season of fewest live births being Q1 from 1957 to 1964. This justified using an expected birth month distribution that reflected the changing trends in birth patterns together with the particular years in which the subjects in the current study were born.

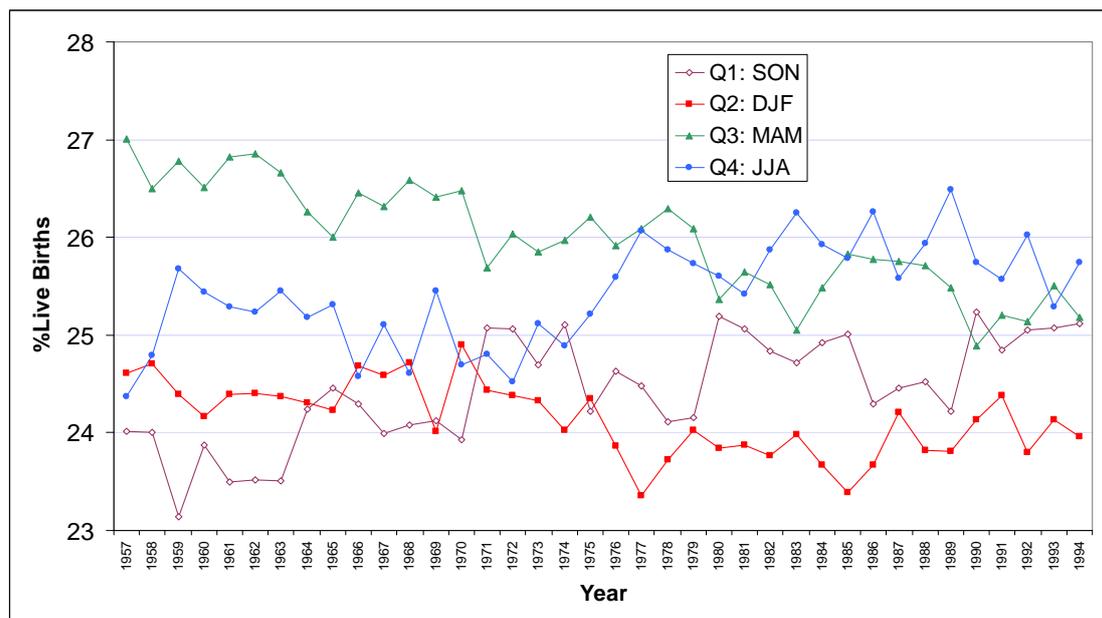


Figure 1. Trend of female live births

Figure 2 shows the observed and expected frequency distribution for month of birth and illustrates that more players were born in September than any other months while the fewest players were born in August. When considering the 12 calendar months

there was no significant difference between the observed and expected birth month distributions ($\chi^2_{11} = 9.6$, $p = 0.564$).

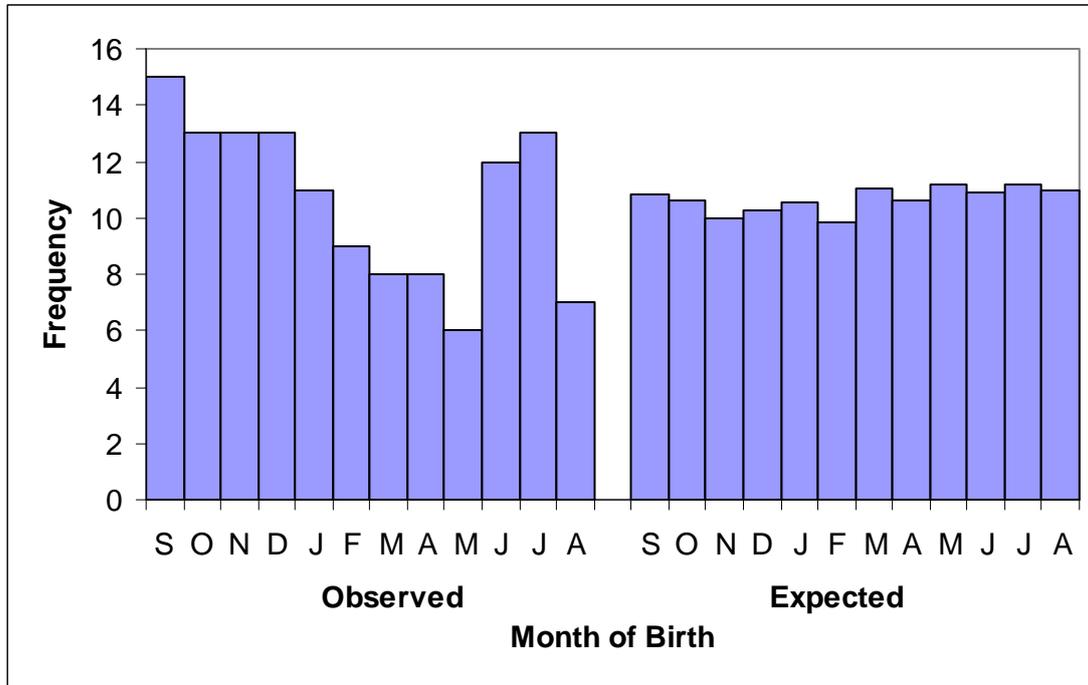


Figure 2. Month of birth of club and university female hockey players.

Table 1 shows birth month frequencies for broader periods of the year. While the distribution of player births among different quarters of the year was not significantly different to the national birth distributions, ($\chi^2_3 = 6.7$, $p = 0.082$), the 57.8% of players who were born between September and February was significantly greater than the 48.5% of the national female population ($\chi^2_1 = 4.4$, $p = 0.035$).

Table 1. Shows the observed and expected frequency distributions for the different quarters and halves of the year.

Month of Birth	Observed	%Observed	Expected	%Expected
SON	41	32.0	31.4	24.5
DJF	33	25.8	30.6	23.9
MAM	22	17.2	32.9	25.7
JJA	32	25.0	33.1	25.9
H1	74	57.8	62.1	48.5
H2	54	42.2	65.9	51.5
Total	128	100.0	128	100.0

4.2 Qualitative Findings

This section documents the findings of the interviews with regard to relative age issues, support networks, participation and attrition motives.

4.2.1 Participation Motives

Participation in hockey for the majority of subjects was originally derived from school and the influences of peers and, for one subject, her father (parents). This investigation highlighted eight factors as the main incentives for playing hockey. These included, fun and enjoyment, achievement, developing skills, competition, fitness, and socialising in terms of meeting new people and making friends. *'I took up hockey because I enjoyed playing it . . . lots of my friends played It was a social thing'* Furthermore all participants identified themselves as being the best or one of the best players in their school. Perception of ability was a crucial reason for participation.

It is important to note that participation motives for all subjects changed as their hockey career progressed. During the initial stage of hockey the key factors included fun/enjoyment and playing because all their friends were playing. However these altered in their mid teens with importance being directed towards achievement, winning, competition and selection for a higher team or representing county. *'I played more competitively and I wanted to compete to improve my level of performance more than I had done when I was younger . . . more focused on performance and fulfilling my potential.'* Another subject stated *'It wasn't just for fun any more I wanted to win'*. It was also evident that parents strongly influenced the players' involvement in hockey. *' . . . my mum and dad are quite sporty people so they encouraged me, . . . buying my hockey stick . . . taking me to training. . .'*

4.2.2 Attrition Motives

The problem of player attrition was evident within all transcripts. Data indicated that negative experiences encountered during selection, training and competition were the main reason for discontinuation or thoughts of discontinuation. Issues in relation to training situations were expressed, one subject stated, *'The drills are repetitive. It's repetitive and boring'*. Moreover another subject stated *'If a training session hadn't gone well it would put me down'*

When comparing key themes across all subjects a reoccurring issue was that of conflicting relationships between players and coaches. One subject stated *' . . . coach is not very approachable. If you have a problem you would fear to go to him . . . he shouts and swears I don't think its very welcoming'*. This suggested that the wrong type of coaching style has implications for attrition. Further cause for these conflicts included lack of feedback (support), and being unfairly treated and/or overlooked.

This suggested that a negative coach athlete relationship is a key factor in discontinuation. Relationship with peers was another powerful factor in terminating playing hockey *'I considered giving up . . . because I didn't know anyone on the team and I got the sense of cliquy-ness . . . didn't go to training because I didn't know anyone. I didn't feel encouraged to go. No one was encouraging me'*. In addition subject 7 stated *'Over the summer I was thinking about quitting because . . . I didn't get on with everyone in the team and I didn't want to go back to that situation'*.

Furthermore the element of time demands in terms of training, matches, travel and the inability for a balanced lifestyle and determining the priority of playing over other aspects of life was an issue. *'At times it has been a compromise between my commitments and thinking about should I be putting my work first? Or the completion of my degree? Have I got time to commit to both?'* Subject 6 elaborated further *'Wednesday and Saturday you give up pretty much your whole day to travel somewhere . . .'*

4.2.3 Selection

All players recognised the importance of the selection process within their hockey career *'if you wanted to play for a team, you did have to have trials and try out.'*

When starting out, all players were selected to play for their school. However, subjects identified the different selection procedures at the different stages of their career. In the early experience of their hockey career, it was noted that selection didn't always occur. Moreover if selection happened it was based upon commitment and dedication to training with less emphasis on ability (sport for all mentality). *'Selection was based on commitment and regular training . . .'* In the latter stages

selection was based on ability, skill and talent *'Selection for county was more focused in performance.'*

Another key theme that manifested itself throughout is that of biased selection. Many subjects noted the importance of being known. So, if they had previously been selected they were more likely to be selected again. *'The people who had been playing county for longer were favoured over others'*. Another subject stated, *'More about who you knew and if you hadn't been pre season training, the coaches didn't really know you and you didn't know others, so you had less of a chance of getting in.'* Hockey politics is a perceived problem; participants identified the need for fairer selection, in order for the best team to be picked.

4.2.4 Support Networks

The issue of support was a reoccurring theme within all subjects' transcripts. Data reflected the importance of family support, in terms of finance, transport, as well as emotional support. *'My parents helped me all the way. They would come away with me to away matches . . . they paid for my equipment'*. What's more a subject stated *'In my club my parents actually became president of the club. So they were involved a lot in the club. They came to support all our games and they funded . . . our matches.'*

The type of support provided by the family during early teen years was exposed as being different to that of when the player reached 18-21 years. *'Support probably became stronger at that stage because my commitment to it became stronger and I started playing more hockey . . .'* In the early years the key factor was transport and financial support. However, during late years indirect finance such as diving lessons and emotional support seemed to be of importance. *'My mum and dad gave me driving lessons and brought me a car. . . so I could get to matches on my own . . . but*

still paid for equipment and membership'. A different subject detailed 'My family aren't so heavily involved anymore. I now drive so there is not the transport aspect . . . I am away from home its not as intense as before . . . Phone calls to see how I am doing and if I'm enjoying hockey and generally support me, like money and things and membership, which we have to go to pay.'

Commitment and support provided by peers/team players was also indicated as being significant. *'Socialising helped build relationships within the team, which had a positive effect.'* Moreover another subject said, *'The main core of my friends were really supportive and most of them still played.'*

The effect of having a positive coach athlete relationship was crucial in developing as a hockey player. This was evident throughout all three stages. *'I had a teacher at school and she was really supportive and she found me a place at my local club. She also coached at our local club alongside another coach. They were both really supportive and understanding when I had lots of schoolwork'*. Furthermore subject 3 stated, *'I had a really good coach athlete relationship. It encouraged me to keep going. I never thought about quitting because that relationship was always positive.'*

Another theme, which arose, was that of support in terms of opportunities to play, facilities and resources. *'In my area there were lots of small teams and they each played in different leagues so I was able to join a team and if I was too good or too bad for that team I could join another team'*. Another subject stated the significance of having *'Like nine Astro's in Cheltenham'*.

Throughout this study, it has been identified that the wrong type of support can be associated with player withdrawal, highlighting the value of peer, coach and parental function. *‘Coach is incredibly hard to talk to. I have text him a few times with a few issues and he hasn’t got back to me . . . phoned him – hasn’t got back to me. . . . What annoyed me most . . . I tried to speak to him about it. He just didn’t reply.* An extensive body of evidence provided acknowledged how inappropriate or lack of support from coaches had a negative effect on players especially in relation to selection process. *‘I was playing for two clubs and one of the clubs dropped me . . . was I being dropped because I wasn’t good enough or was I being dropped because of the ability of other people? It reduced my confidence in my own ability . . . I had self doubts . . .’* Subject 6 also stated, *‘I think this has annoyed me the most as well. I feel that when I’ve been playing and training, I have been doing fine . . . and yet still not being picked for the team so . . . don’t really understand why.’* Problems appear to arise after squad selection when subjects were not named in the team. Therefore, the need for the provision of feedback stating the reason for de-selection and how the player can improve to get back in to the team is very important. As stated by subject 7 *‘The importance should be with the players being dropped.’*

Moreover lack of support in terms of the absence of school club links, lack of teacher commitment and training opportunities emerged when exploring the text . . . *‘training was just a basic hour after school. If it was raining it got called off. . . competition . . . it was only a 20minutes each way game, which tended to be cut down in the second half because no one could be bothered including the teacher.’* This appeared to increase the difficulty for some subjects to continue to play and/or progresses. *‘I live in quite a rural area. There are actually not that many facilities so had to travel to*

north Wales if you wanted to get into a competitive league. Another subject added 'I went to a small college . . . our hockey team, well . . . there wasn't really a hockey team. There wasn't enough players to take part'. Subjects also identified the need for fully qualified coaches. 'There is a level you can get and then it does kind of stop . . . because of restrictions in coaches.' Another subject mentioned 'Most of the other schools had proper hockey coaches that trained clubs as well . . . so their teams were a lot more developed than ours . . . I didn't know if I could compete with them'. This all signified the lack of support in terms of quality coaching.

4.2.5 Relative Age effect

The theme of physical advantage arose in the majority of the interviews and was a fundamental factor in how players perceived themselves. One subject in the H2 category commented 'I was always quite small'. Further elaboration included the statement 'I wasn't one of the strongest'. Another subject from H1 section elaborated 'I was one of the stronger ones, so it was easier'. However some subjects in H2 group indicated that their physical status was positive 'I am probably one of the quicker ones so more agile . . . I dribble with the ball a lot faster than other people.' Additionally subject 5 said 'Physically I was a lot smaller but at the younger age I was a lot fitter . . .'

Subjects participating in this study described negative experiences such as coaches believing it essential to play the older players over the younger players. One subject stated, 'Third years automatically get a place in the team, whereas first years are just put in if there is a space.' On the other hand subjects from H2 identified constructive points to playing with older people. ' . . . got to train with the senior island team, that

was really, really positive because they were a much higher level . . . definitely pushed my training along.'

Subjects identified problems fulfilling their potential. Players commented that being deprived of quality coaching and competition delayed their development. *'Most of the other schools had proper hockey coaches that trained with clubs as well . . . their teams were a lot more developed . . . I didn't know if I could compete with them . . . I knew they were better than me.'*

An interesting contrast emerged when the data for the H1 and H2 interview participants was compared. Those born later in the year, who may have overcome a relative age disadvantage and have been used to working extra, had to compensate for physical immaturity in order to get into the higher teams and still be selected. However, those born early in the year are not being selected and finding it more difficult to get into teams. *'I was absolutely tiny . . . so if anything it was a hindrance . . . when I started to grow it was ok . . . at that age I had grown a lot more so that was better.'*

6.0 Conclusion

This study found evidence for the relative age effect within female hockey players at club and university level. However the relative age effect is not the main source of withdrawal from hockey. Instead it appears that other factors exacerbate the motivations to withdraw. The major issues that emerged in relation to discontinuance included negative experiences in relation to selection, poor coach athlete relationship, lack of feedback and finally lack of friendship within the group. Furthermore findings demonstrated that the most important predictors for participation included fun, enjoyment, affiliation and the development of skills. Other important factors included the influence of family, coach and peer support.

6.1 Practical Implications

It is important to overcome problems of relative age effect. Solutions include, rotation in cut off dates (Boucher and Halliwell, 1991; Daniel and Janseen 1987; Barnsley *et al.*, 1985). In addition to the rotating cut off dates it is important to reduce the amplitude of the age effect from one year to nine months, this will significantly help reduce the age disadvantage. Another resolution would be to create more age categories with smaller age-band width, thereby decreasing the relative age and physical differences between players (Barnsley and Thompson, 1988). Moreover it is apparent that people, including teachers, selectors and parents are clearly aware of the relative age effect. It is important to change the mentality of coaches and create a new criteria on which to base selection (Helsen *et al.*, 2000b).

6.2 Direction for Future Research

It would be beneficial to apply the benefits of qualitative research to the wider study of relative age effect in sport and the lived experiences of athletes. Research previously done in other sports needs to use national birth patterns rather than assuming a uniform birth distribution. Adding sophistication of methods applied in the current study would give more accurate statistical analysis.

Action such as awareness schemes and rotating cut off dates need to be applied and the effectiveness of such measures evaluated. This effectiveness is ultimately measured in terms of increased participation rates, improved health, reduced absenteeism from school. Such an evaluation of effectiveness of these actions would also benefit from rich qualitative analysis of children's experiences.

Longitudinal studies are needed to determine exact points and periods within adolescence where children have been withdrawing from sport.

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Appendix A

Dear Subject,

I am a level three undergraduate student in the School of Sport, PE and Recreation, at the University of Wales, Institute Cardiff. I am currently undertaking research for my dissertation to investigate the lived experiences of female hockey players born in the first half of the school year compared to those born in the second half. I was wondering whether you would be kind enough to help with my research.

The research aims to discover the experiences of female hockey players at different stages of their careers. As a subject you will be asked to participate in an interview. There are no risks involved in participating and participation is entirely voluntary, therefore, you are free to withdraw at any stage of the research process.

Confidentiality will be upheld as far as humanly possible. Throughout the research process your anonymity will be protected. Access to the data gathered will be kept strictly confidential with only myself and my tutor gaining access.

If you are willing to participate in my study please read the slip overleaf carefully and sign. If you have any questions please do not hesitate to contact me.

Thank you for your cooperation.

Sian Perham (Principal Researcher)

BSc Sport Coaching

Mobile: 07766733551

Email: syperham@hotmail.co.uk

I have read and understood the request to be a participant in the study principally researched by Sian Perham, and I fully understand the processes and measures involved. I understand that participation is completely voluntary and withdrawal from the study is possible at any time. I am fully aware that measures are being held throughout the research study to uphold confidentiality. Based upon this I agree to participate in the study.

Participant Signature:

Print Name:

Date:

Principal Researcher Signature:

Print Name: Sian Perham

Date:

Appendix B

Semi Structured Interview Questions

Early experiences (age 12-15)

How old were you when you first started playing hockey?
How did you take up the sport?
Why did you take up the sport?
Did you have the support of your family?
Peers?
What was your coach athlete relationship like?
Did you go through any selection processes?
Feelings on selection process at the time
What were your experiences at this level of both training and competition?
Did you enjoy playing?
Did you find it Challenging?
What were your feelings towards opponents?
What motivated you to participate to begin with?
Did motives change during early stages?
How did you perceive yourself and your ability?
Ever felt like giving up?

Second Stage of transition (age15-18)

What was your experience of hockey at this level?
Any different from early stages?
If yes why?
How was your first experience of set up?
What were your feelings of selection process?
What were your experiences at this time with respects to self perception of ability?
Any time you felt not good enough?
Support network at second stage
Any differences from early stage?
Why did you participate (participation motives)?
Affiliation with peers, learning new skills, fitness, competition
Ever felt like giving up?

Third Stage of transition (age18-current)

What were your experiences and feelings during selection process?
Opinion of processes?
Self perception of ability and others?
Support networks –is your family supportive?
Are your participation motives the same today as before?
Ever felt like giving up?

What month were you born?