Spring 4-25-2018

Helmets: An examination of the opinions of high school girl's lacrosse coaches

Kelsie Schindler
kes03219@sjf.edu

Helmets: An examination of the opinions of high school girl's lacrosse coaches

Helmets: An examination of the opinions of high school girl's lacrosse coaches

Kelsie Schindler

St. John Fisher College

Executive Summary

The purpose of this study was to determine what coaches thought about creating a new rule to require girls to wear helmets in girls lacrosse. Florida was the first state to mandate helmets in high school girls lacrosse and seems to be a potential change in the near future for other states (FHSAA, 2014). With helmets on the horizon it was important to study coaches opinions because they are on the forefront of these changes. It was previously known that head injuries were a problem with in the game of girls lacrosse (Marar, 2012). The typical injuries that were found within the sport of girls lacrosse were tears in the ACL and injuries to the head and face region (Marar, 2012).The research that was done before this study showed a gap between the number of injuries in girls lacrosse, the preventative measure that needed to be taken within the sport, and how this had the potential to effect coaches within girls lacrosse. Descriptive statistics and an ANOVA were used to determine the relationship between these variables. It was concluded that high school girls lacrosse coaches do not know the potential impact helmets could have on girls lacrosse (i.e. rule changes, change in overall cost, and increased physical play of the sport). The variables listed above have the potential to change and impact the sport of girls lacrosse. The knowledge on how these variables could change is important for high school coaches and USA Lacrosse to know, if they are going to make rule changes regarding helmets.

Introduction

The objective of this research was to study what high school girl lacrosse coaches thought about the potential implementation of helmets in girls lacrosse in New York State. Florida was the first state in the United States to make this rule mandatory at the high school level (FHSAA, 2014). When Florida made this rule change, the potential for a change in other states to make this rule mandatory at the high school level increased. The number of injuries that happen in girls

lacrosse has also raised awareness. Marar (2012) determined that in high school sports, girls lacrosse was second compared to soccer, field hockey, and softball in regards to the number head injuries. Helmets were thought to be the solution to these injury statistics. School districts budgets and the overall cost to play the sport have the potential to change. The current equipment costs to play the sport are relatively low, by requiring a helmet the cost would change. The physically style of play is another factor that has the potential to change. With the potential implementation of helmets, other equipment such as shoulder pads and chest protectors could become necessary. With these potential changes the research question of this study was: What are the New York State high school girls lacrosse coaches opinions on the potential implementation of a rule requiring all girls to wear helmets? Coaches are on the frontline of these changes. The opinions of high school coaches were evaluated in order to develop a clear understanding of whether helmets are the solution to reducing injuries in girls lacrosse and making the sport safer.

Background Information

Kay (2017) defined a severe injury as an injury that restricted participation for more than three weeks. Injuries that keep a player out for at least three weeks are common within girls lacrosse. The typical injuries that were found within the sport of girls lacrosse were tears in the ACL and injuries to the head and face region (Marar, 2012). The average recovery time for an ACL injury is around nine months (Esposito, 2012). While an injury to the head and face region can vary even if the injury is deemed a concussion. Most athletes if they experience a minor concussion wait at least one calendar day to be seen by a medical professional and then the recovery time is decided; if the symptoms are minor usually around one week. If the athlete experiences severe symptoms, that person could be out as long as six months (NCAA, 2014).

Kay stated in 2017, that the number one injury in women's lacrosse was the tearing of the ACL. Kay used prospective surveillance program managed by Datalys Center for Sports Injury to monitor and record injuries in college athletics in real time (Kay, 2017). With this system Kay was able to prove that concussions were not the top injury in women's lacrosse. Women's lacrosse has been in question, as to why some players have been seen without wearing helmets. The current research on this topic showed that concussions were not the top priority when regarding injury.

Marar in 2012, discussed how girls soccer had more concussions than boys soccer. Girls had 3.4 per 10,000 athletes and boys had 1.9. Girls and boys soccer are very similar sports in relation to rules, equipment, and style of play. In basketball girls had a higher rate of concussions than boys, but boys had quicker symptom resolution time. Overall boys and girls basketball were also very similar which makes for a logical conclusion that there would be little difference between injury rates. Girls and boys lacrosse could not be considered directly comparable sports given the vast rule differences, particularly regarding allowable body contact and required protective equipment in boys' lacrosse (Marar, 2012). Boy lacrosse players were nine times more likely to have an injury during competition while girl lacrosse players were six times more likely (Marar, 2012). With boys lacrosse having more equipment and higher level of physical contact has had people concerned about the potential implementation of helmets in girls lacrosse. Pennington (2017) interviewed some division one college coaches about this topic. A member of the coaching staff at the University of Pennsylvania stated, "As soon as you put helmets on, you're going to end up going to shoulder pads because the kids hit harder" and "They also will start to lead with their heads because they feel protected, and that causes more injuries". The head coach at Boston College stated, "Added that if there came a time when headgear was

required at the college level, she would not want to coach" (Pennington, 2017, pg. B5). Additionally, girls' lacrosse had the fifth-highest rate of concussions in high school sports but no headgear, not even hard-shell helmets, has been proven to prevent all concussions. Headgear has been effective in lessening head trauma caused by stick-to-head or ball-to-head contact, which does occur in girls' lacrosse (Pennington, 2017). Referring to these sources and the data that has been studied on injury rates compared to girls and boys sports, helmets in fact were not the best option in reducing concussions in girls lacrosse. Gammons in 2013 stated that helmets were put in place to spread the force over a greater surface area to hopefully lessen the impact. There is no supporting evidence that a helmet can in fact prevent concussions, but it can prevent minor bumps and bruises to the face and head area (Gammon, 2013).

Helmets

Research has been done on other sports to see how the mandatory implementation of helmets effected injury rates. Daneshvar (2011) stated helmets have decreased catastrophic head injury since they were put in place. A skull fracture would be an example of a catastrophic head injury (Mueller, 2001). Despite the implementation of helmets in men's ice hockey, the rate of concussions has increased (Daneshvar, 2011). This suggested that even if helmets were introduced as required equipment in girls lacrosse, there is no indication the concussion rate for these girls would change. The discussion about girls lacrosse needing helmets has been happening for a long time. With recent rule changes in Florida for high school players the topic had gained more attention (Pennington, 2017). Parents believed requiring girls to wear helmets would keep the sport safer. The FHSAA (Florida high school athletic association) stated that their emphasis was on the safety of the student athlete. Mandating girl lacrosse players to wear helmets was a precautionary measure against head injuries (FHSAA, 2014). Concussions have

been an injury that people know about and people who have seen girl lacrosse players not wearing helmets, have drawn the conclusion that head injuries must be prominent.

The coaches who advocated for the expansion for girls lacrosse were not on board with the helmet rule change. A high school coach was interviewed and spoke about how different girls lacrosse is from boys lacrosse. This coach stated how there is a rule specifically for reducing injury in girls lacrosse. The rule is called shooting space; the rule breaks down to when an offensive player is shooting and a defender steps into the line of the shot, a whistle is blown and a foul is called (Hiro, 2012). The concern from this coach was that if more equipment was added, a rule such as shooting space might be taken away. These officiating rules were put in place to make the game safe. Hiro in 2012 mentioned, how girls lacrosse has strict rules that local officials have been trained to call and sometimes even go beyond the rule book to keep the game safe.

The rise and knowledge of concussions has happened which is why helmets are becoming popular. A professional soccer player collided with another player during the World Cup Finals, he sat out for 15 minutes and was then put back in the game, after the game he could not remember anything from the opening half of the match (Kay, 2014). A helmet would not have prevented a concussion in this situation but a rule change would have. Allowing a player to reenter a game after acquiring a serious injury falls on the trainers and the coaching staff. As mentioned by Pennington in 2017, helmets would have taken some of the blow but would not have prevented this injury. The protocol to return to play is a variable that if changed has the potential to make sports safer.

Parents

Parents have been a big advocate group for helmets in girls lacrosse. The helmet has been optional for many girl lacrosse players but has been something that anxious parents felt should be mandatory to reduce head injury in the sport (Pennington, 2016). Pennington argued that parents do not understand that rule changes and better officiating should be the first preventative measure taken in girls' sports. The officiating in girls lacrosse is much different from boys because the rules have limited stick contact, prohibit body contact, and therefore require little protective equipment (Logue, 2001).

Cost of Youth Sports

The cost of sports and youth sports have been on the rise. Girls lacrosse cost have been minimal. The current protective eye wear ranges from $25-$90, which is quite low compared to the lifelong personal and financial impact of a catastrophic orbit fracture or loss of sight (Lincoln, 2012). After the mandatory protective eyewear was put in place head injuries decreased and has not been proven to be any less effective than a helmet. After looking at both of these diagrams overall head and eye injury have decreased since the protective eyewear has been established (Lincoln, 2012). A current cascade girls lacrosse helmet is selling for around $150 dollars (Pennington, 2017). This price is almost quadruple the price of the goggles. The cost of youth sports has been raised, especially for parents and children who have a dream to play in college or professionally. To add another cost is tough and may cause the sport to lose players. Many high schools and colleges have provided their athletes with helmets at least for football, boys lacrosse, and ice hockey. Needing to provide helmets for a girls lacrosse team is an added cost that some school districts might not be able to afford. The argument of whether girls lacrosse needs helmets is a current discussion that could see changes come the near future.

Methods

The purpose of this research was to find what high school girl lacrosse coaches think and feel in regard to the required use of helmets in girl's lacrosse. In order to answer this research question, high school girl lacrosse coaches located in western and central New York were selected to participate in this study. High school lacrosse coaches had the potential to be highly affected by a future implementation of helmets in girls lacrosse and that is why their opinion was studied.

Procedure

Sampling method. Gatekeeper method was used to access high school girl lacrosse coaches in this sample, followed by a snowball technique where participants were asked to share the survey after they completed it. A New York State High School Athletic Representative was identified as the gatekeeper that had the contact information to, high school girl lacrosse coaches. The survey was sent to the gatekeeper and then was asked to share the survey with coaches.

Data collection. Primary data collection was used. The opinions of high school coaches were assessed. High school coaches were asked what their feelings were towards helmets in girls lacrosse and how they thought the game would change with the implementation of helmets. Data used for the demographic variables were the coach's gender, age, race, how many years they have coached girls lacrosse, and what section they coached in and those variables were collected using a nominal scale. The survey was constructed with fourteen questions with an interval response. Respondents were asked to rate each variable to the degree to which they agreed, that these potential changes would happen with the implementation of helmets at the high school level. The Likert scale had anchors of one to five with one being strongly disagree and that there would be no change with helmets and number five being strongly agree and that there would be a

definite change with helmets. The category of variables that were studied were: shooting space rule removal, the injury rate in girls lacrosse, the effectiveness of current equipment, and potential increased cost. These categories contained multiple variables. The likely hood that the shooting space rule would be removed from the game was under the effect on the rule change category. The potential increased cost measured how much the coaches thought the overall cost of girls lacrosse would increase if helmets were made mandatory. The injury rate in girls lacrosse, measured the variable regarding potential increased physical nature of the game. This meant, how likely did the respondents feel that the game would become more physical in regards to the style of play and body to body contact. The last category that was measured was the effectiveness of current equipment. Respondents were asked to rank how much they agreed with the potential for more equipment to be added to the sport after helmets become mandatory. They were finally asked how much they agreed with the effectiveness of the current equipment compared to the potential new equipment.

Analysis

The data was analyzed using an F test for ANOVA. By using this test, the means of the two groups and their differed response rates were compared. The demographic variables of age, gender, how long had the participant coached girls lacrosse, and their race were compared to the continuous variables. The continuous variables were measured to the degree in which the participant agreed with the statement. These continuous variable statements were: if girls were required to wear helmets could the shooting space rule be removed, goggles preventative measure against catastrophic injury, goggles preventative measure against minor injury, how effective are helmets in preventing catastrophic injury than goggles, are helmets more effective in preventing minor injuries than goggles, should girls be required to wear helmets, how much

would the amount of injury rates increase with required helmets due to corresponding physical play, how much stick to body contact would increase with required helmets, what role do referees play in keeping girls lacrosse safe, how likely is that a high schools budget would increase if helmets were required, how much do you think cost associated with required helmets would deter girls from playing, and finally the individual player cost potential to increase. By using these variables in an ANOVA test, the trends between my categorical and continuous variables were shown. Descriptive statistics was used, to find the mean and mode within the categorical and continuous response variables. Being able to compare a coach's age, gender, race, and how long they have coached to the continuous variables gave a statistics answer to the research question.

Results

Sample

The data for this study were collected by using the survey software Qualtrics. The link was distributed through email. At the conclusion of the collection period, there were 49 responses. Only one of these responses did not consent, as a result it was deleted from the study which reduced the total number of participants to 48. Due to the few number of responses, this sample population was not a completely accurate list of representation of that population. Therefore, the following responses and results could not be generalized as the overall population's attitude towards the implementation of helmets in girls lacrosse and what high school coaches think about this potential rule change.

To understand the sample population of the study, the survey had five demographic questions that respondents were required to answer. The whole sample responded as white caucasian at 100% (n = 48). The majority of the sample population was male recorded as 54.2%

(*n* = 26) while 45.8% (*n* = 22) were female. The age demographic resulted as, 2.1% (*n* = 1) were ages 18-24, 22.9% (*n* = 11) were ages 25-30, 45.8% (*n* = 22) were ages 31-40, 12.5% (*n* = 6) were ages 41-50, and 16.7% (*n* = 8) were 51 or greater. 18.8% (*n* = 9) were coaches that have coached less than 5 years, 33.3% (*n* = 16) were 6-10 years, 37.5% (*n* = 18) were 11-20, and 10.4% (*n* = 5) was 21 or greater. 58.3% (*n* = 28) were from Section III, 33.3% (*n* = 16) was Section V, and 8.3% (*n* = 4) was Section X.

Descriptive Statistics

Respondents were asked to indicate how influential the implication of helmets in girls lacrosse would have over fourteen variables within the game. The variables were measured on a Likert scale and were provided five different responses to the statements, which were: *(1) strongly disagree, (2) somewhat disagree, (3) Neither agree nor disagree, (4) somewhat agree, and (5) strongly agree.* Overall 56.3% (*n* = 27) of the sample strongly disagreed that the shooting space rule has the potential to be removed with helmets. 45.8% (*n* = 22) strongly disagreed that goggles prevent catastrophic injury. 41.7% (*n* = 20) somewhat agreed that goggles prevent minor injuries than helmets. 37.5% (*n* = 18) somewhat agreed that helmets prevent more catastrophic injuries than goggles. 43.8% (*n* = 21) somewhat agreed that helmets prevent more minor injuries than goggles. 37.5% (*n* = 18) strongly disagreed that helmets should be required in high school girls lacrosse. 16.7% (*n* = 8) felt that injuries would increase a little if helmets were required at the high school level. 18.8% (*n* = 9) thought that the physical contact within the sport of lacrosse was somewhat likely to increase with helmets added. 29.2% (*n* = 14) believed that the referees and helmets play the same role regarding safety within the game. 37.5% (*n* = 18) believed that goggles and referees play the same role regarding safety within the game of girls lacrosse. 25.0% (*n* = 12) thought that it was moderately likely for a high school girls lacrosse budget to increase

with the required use of helmets. 31.3% (n = 15) believed a little that the cost of a helmet in girls lacrosse would be a deterrent for people who want to play. 6.3% (n = 3) believed that the overall cost of girls lacrosse would increase from between 115 and 150 dollars if helmets were made mandatory.

Inferential Statistics

An Independent Samples T-Test was used to determine if there were significant differences in the average rating of whether coaches believed, the increase in cost would be a deterring factor for girls that want to play lacrosse with respect to the coach's age. Ages 18-30 had a mean of 2.29 regarding if the variable cost was a deterring factor and respondents who were 31+ had a mean of 1.95, this difference was not significant. The test determined that, $t(27) = .980$, $p > .336$. The Bonferoni adjusted alpha was .025. An ANOVA test was run to determine if coaches differed in their average responses to factors that could change with helmets with respect to their age. For a better look at the results, refer to Table 1

Table 1

Coaches Responses On Factors That Could Change With Helmets With Respect To Their Age

Stubhead	d*f*	*F*	*p*
Column spanner			
Required Helmets Between Groups	47	1.410	.241
Remove Shooting Space Rule Between Groups	47	.869	.356
Potential increase of physical contact Between Groups	29	.045	.833
Cost Deterring Factor Between Groups	28	.960	.336

Comparing if a coach had been coaching for a long time or was relatively new did not seem to change the response rate. Overall coaches from all age types and experience with coaching, believed that helmets seem to be an irrelevant factor in making the game of high school girls lacrosse safer.

Discussion

The purpose of this study was the determine how high school girl lacrosse coaches felt about helmets becoming mandatory within the sport of lacrosse. The survey gave results regarding a coaches demographic factors compared to the variables that had the potential to be impacted by the implementation of helmets. The variables: removal of shooting space and rule changes, the increase in physical contact within the sport, and the increased cost of the sport showed no significance between older coaches and youngers coaches, in regard to how these people felt about these variables.

These results were similar to the findings in previous publications. There was not much extensive research done before this study regarding a high school coaches opinion on helmets in girls lacrosse but there was research on injury prevention within in the sport. It was previously concluded that girls lacrosse had a high stick to body contact rate as well as a high concussion rate (Mallika, 2012). Comparing this issue to boys lacrosse and thinking that more equipment would lead to less injuries was wrong. There was no significant difference in rates of concussions during competition between boys and girls lacrosse (Mallika, 2012). Boys use more equipment which would lend the thought of more protection and less injury. The current mandatory protective eye wear has been proven to reduce injury. Concussion rates have grown over the past 10 years (Mallika, 2012). It appears, that the increase rate of head injuries in girls lacrosse have not been associated with the protective eyewear (Lincoln, 2012). In recent study,

girls lacrosse had the fifth-highest rate of concussion in high school sports, although no headgear, even hard-shell helmets, have been proven to prevent all concussion (Pennington, 2017). These study's findings contradicted with the survey's results because current high school coaches thought that if helmets were made mandatory that they would reduce injury and prevent concussions. There is no supporting evidence that a helmet can in fact prevent concussions but it can prevent minor bumps and bruises to the face and head area (Gammon, 2013). Helmets had the potential to make the game more aggressive and evidently adding more equipment (Pennington, 2017).

Limitations and Delimitations

A limitation to the study was that there was not a gatekeeper for every section in New York State. Obtaining results from every section in New York State would have strengthened the conclusions from the survey. There was also no guarantee that the gatekeepers for this study would send out the survey to the coaches within their section. Not knowing if the survey would be sent out was a limitation because the results of this survey were reliant on coaches opinions and if coaches did not receive the survey there would not have been any results.

A delimitation that was set, was to only study high school coaches opinions regarding helmets. A rule change regarding helmets in girls lacrosse could have an impact on many more people besides high school coaches. Another delamination that was set was to study only New York coaches. Other states have changed their rules regarding helmets in high school girls lacrosse and by limiting the research to within New York a large portion of data was not looked at.

Recommendations

One recommendation for future studies on this topic is to study not only study New York State but other states that have made a rule change. Surveying more high school coaches will produced more general and overall consensus on what current high school coaches think about helmets within girls lacrosse. Another recommendation would be study not only high school coaches but collegiate coaches. With helmets being made mandatory in some states at the high school level it is only a matter of time before helmets infiltrate into the college level.

It was concluded that younger and older coaches hold an overall similar opinion to factors that had the potential to change with the implementation of helmets. Practically speaking if New York State required helmets within girls lacrosse many variables would need to be assessed. High school coaches would need to be provided with training sessions, so New York State could standardized what helmets do and how they are preventative within the sport of lacrosse. Future researchers should consider what variables would need to include in these potential training and educational sessions surrounding helmet protocol in high school girls lacrosse.

Summary

The purpose of this study was to determine what coaches opinions were on the helmets in girls lacrosse and how they felt helmets would change the game. It was previously known that concussion and injury rates were a problem within the sport of girls lacrosse. Descriptive statistics and an AONVA were used to determine the relationship between the variables. The biggest takeaway from this study is that there was not a significant finding, which meant that overall high school coaches do not agree nor disagree that helmets would make the game of high school girls lacrosse safer. Comparing if a coach had been coaching for a long time or was

relatively new did not seem to change the response rate. Overall coaches from all age types and levels of experience in coaching believed that helmets seem to be an irrelevant factor in making the game of high school girls lacrosse safer.

References

Daneshvar, D., & Baugh, C. (2011). Helmets and Mouth Guards: The Role of Personal Equipment in Preventing Sport-Related Concussions. *National Center for Biotechnology Information, 30*(1).

Esposito, L. (2012). The Dreaded ACL Tear – and How to Recover. *U.S. News and World Reports.*

Florida High School Sports Athletic Association. 2014. Retrieved from https://www.fhsaa.org/news/2014/0610-0

Gammons, M. G. (2013). Helmets in sport: Fact and fallacy. *American College of Sports Medicine, 12*(6), 377-379.

Headgear. *The New York Times,* pp. B5.

Hiro, B. (2012, May 18). Prep girl's lacrosse: Most players, coaches agree helmets no necessary. *The San Diego Union Tribune*.

Lincoln, E. A, Casewell, V. S., Almquist, L. J. (2012). Effectiveness of the women's lacrosse protective eyewear mandate in the reduction of eye injuries. *The American Journal of Sports Medicine, 40*(3), 611-614.

Logue, B. & Allen, M. J. (2001, October). Stick to the nation's fastest growing sport and score

Marcos A. Abreu, Wirt Edwards, Brandon D. Spradley. (2016) The War Against Concussions. *The Sport Journal, 12,* 1-12.

Marar, M., Mcllvain, N., Fields, S. K., & Comstock, D. R. (2012). Epidemiology of concussions among United States high school athletes in 20 sports. *The American Journal of Sports Medicine. 4*(747-755).

Melissa C. Kay, Johna K. Register-Mihalik. (2017). Epidemiology of severe injuries sustained

by national collegiate athletic association student-athletes. *Journal of Athletic Training, 52*(2),117-128.

Mueller F. (2001). Catastrophic Head Injuries in High School and Collegiate Sports. *National Center for Biotechnology Information.* 312-315.

National Collegiate Athletic Association (2014). Concussion Diagnosis and Management Best Practices.

Pennington, B. (2016, October 28). With headgear, girls' lacrosse just got safer. Or did it? *The New York Times,* pp. SP12.

Pennington, B. (2017, November 23). As Concussion Worries Rise, Girls' Lacrosse Turns to a new program. *New York Times,* pp. SP11.

Stanely, Kay (2014). With concussion reforms at forefront, should youth headers be nixed *Sports Illustrated.*

Sullivan, P. (2015, January 16). The rising cost of youth sports, in money and emotion. *The New York Times,* pp. B4.