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COURT DECISIONS REGARDING GOLF-RELATED INJURIES: A QUANTITATIVE CONTENT ANALYSIS AND BINARY LOGISTIC REGRESSION

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By

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DISSERTATION

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Dedication

This is for my beloved parents and wife.

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ABSTRACT

This study investigated specific injury patterns among injured plaintiffs on or near golf courses, the characteristics of golf injury lawsuits brought against golf courses, as well as the most influential factors that can affect a golf course's success in golf-injury lawsuits. For these purposes, the study analyzed 147 golf-related injury legal cases between 1930 and 2013 using quantitative content analysis.

Among cases reviewed, male plaintiffs suffered more golf-related injuries as compared to female plaintiffs. An overwhelming majority of people injured by golf course accidents were adults. The top cause of golf-related injuries was golf ball accidents. A substantial number of plaintiffs suffered minor golf-related injuries. The most commonly injured body parts were the head and lower body areas. Golf-related injuries occurred primarily on the golf course rather than off of the golf course. The cause of golf course accidents was significantly related to age, the injured body part, the location of injury, and the severity of injury. Additionally, the severity of injury showed associations with gender, age, and the injured body part.

The lead plaintiffs in golf-injury litigation were considered to be invitees. A large number of plaintiffs who suffered golf-related injuries usually brought negligence claims against nonmunicipal golf courses rather than municipal golf courses to recover compensation for injuries. Dominant defenses available to golf courses were four elements not present, multiple defenses, and primary assumption of risk. More than half of the cases were in favor of golf courses. There was a significant association between the type of claim and the type of defense. A significant association was found between the type of golf course and the type of defense. It was found that the most influential factors that can affect a golf course's success or failure were known risks to the plaintiff and multiple claims.

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Chapter 1

Introduction

Background

An increase in leisure time provides people with more opportunities to take part in sports activities (Sawyer, 2005). In 2012, it is estimated that approximately 206.7 million Americans 6 and older participated in sports, fitness, and recreation activities, including individual, racquet, team, outdoor, winter, water, and fitness sports (SFIA, 2013). One of those activities is golf, an individual sport and popular pastime in the United States. In 2003, more than 30 million people played golf in the United States (Beditz & Kass, 2010). Although the number of golfers has been declining since then, an estimated 27 million golfers still take part in the sport as of 2009 (Beditz & Kass, 2010).

Many people view golf as a sort of entertainment. However, the sport has potential hazards that can lead to serious injuries and even death. In conjunction with the sport's popularity, there may be a remarkable increase in golf-related injuries. Golfers, spectators, and even neighbors of golf courses can be injured by errant balls. Golf equipment, such as golf clubs or golf carts, also can be a possible cause of golf-related injuries. Golfers may be injured or killed by lightning strikes because the sport is played outdoors. In 2009 alone, more than 41,000 people in the United States needed emergency-room care as a result of a golf-related injury (National Safety Council, 2011).

Sports activities have their own inherent risks, and participants assume such risks when they participate (van der Smissen, 2007). However, lawsuits concerning sports activities have grown consistently over the past 30 years, and this tendency most likely will continue (Hronek, Spengler, & Baker III, 2007). This tendency seems to indicate that sports

participants have become less likely to accept risks inherent in the sports activity (Young & Jamieson, 1999).

A similar tendency occurs in golf. For example, most jurisdictions would find that golf course owners are not to be held liable for injuries caused by an errant golf ball on the grounds that being hit by such a shot is an inherent risk of the game (*Baker v. Thibodaux*, 1985). However, a study of court decisions conducted by Tonner, Sawyer, and Hypes (1999) showed that more than half of the reviewed golf litigation between 1973 and 1998 were legal claims brought by golfers or spectators hit by an errant ball.

In this context, golf courses may never be free of lawsuits from golf injuries. Given that settling a case may require a considerable amount of time and money, golf course managers are expected to reduce the number of golf-related injuries occurring on or near their golf courses and prevent such lawsuits using risk management strategies.

Statement of the Problem

There have been many studies relevant to golf-related injuries resulting from golf ball, golf club, golf cart, lightning, and slip, trip, and fall accidents. Some researchers have used golf-related injury statistics to examine accident profiles of injured people, including the leading causes of golf-related injuries, the most commonly injured body parts, the most common types of injury, age and gender differences in injuries, and the accident sites (Fountas, Kapsalaki, Machinis, Boev, Troup, & Robinson, 2006; Fradkin, Cameron, & Gabbe, 2006; Jayasundera, Franzco, & Joondeph, 2003; Waston, Mehan, Smith, & McKenzie, 2008). Other researchers have used reported court decisions to address legal aspects associated with golf-related injuries on or near a golf course, such as potential plaintiffs or defendants in golf injury lawsuits, types of claims brought by the plaintiffs, liability on the defendants, and

defenses available to the defendants (DeVoto, 1993; Flynn, 1996, 1997; Kircher, 2001; Scoffield, 2004; Tonner, Sawyer, & Hypes, 1999).

As one can see from the results of studies using statistics of golf-related injuries, the accident profiles of the injured are an important factor in determining specific injury patterns associated with golf. Given that legal cases concerning golf-related injuries usually include information about how a plaintiff was injured on or near a golf course, examining such cases can be used as a good source to understand injury trends among U.S. golf participants. However, there have been no court-decision studies using statistical analyses to address the accident profiles of injured plaintiffs.

In addition, the court-decision studies analyzed judicial decisions concerning golf-related injuries resulting from golf course accidents using traditional legal analysis. Legal scholars using this method usually examine a small number of legal cases on a particular topic based on their subjective interpretation (Hall & Wright, 2008). This approach can help identify legal issues on a given topic (Levine, 2006). However, the results of studies using this method can be affected by selection bias because most of the studies tend to withhold information about where the legal cases regarding the topic came from or why they were chosen as a sample (Hall & Wright, 2008). Also, considering that traditional legal analysis does not have systematic case coding, it would be difficult to secure "the objectivity and reproducibility of case law interpretation" (Hall & Wright, 2008, p. 81). Furthermore, because research using this method dose not analyze legal cases quantitatively, the legal scholars can have difficulties determining overall characteristics in all of the legal cases concerning the topic (Hall & Wright, 2008).

In an effort to supplement the limitations of traditional legal analysis, legal scholars have tried to quantitatively analyze a larger number of legal cases using an empirical method called content analysis (Hall & Wright, 2008). This method has been used by some researchers to examine sports-related legal cases and to determine which factors may contribute to the decision of the courts. For example, Clement and Otto (2007) identified the most important factors that can affect a plaintiff's success in court decisions concerning headfirst aquatic accidents. However, to date, relatively little research of court decisions on golf-related injuries has been done to analyze a large number of legal cases using quantitative content analysis.

The Purpose of the Study

The purpose of the present study was threefold: (a) to identify specific injury patterns among injured plaintiffs on or near a golf course due to golf balls, golf clubs, golf carts, lightning strikes or slip, trip, and fall accidents; (b) to examine the characteristics of golf-injury lawsuits brought against golf courses; and (c) to determine the most influential factors that may affect the golf course's success in litigation.

Research Questions

Based on a review of relevant literature, this study addresses the following research questions:

1. What are the characteristics of golf-related injuries on or near golf courses?
    1-1. What types of golf course accidents occur most frequently?
    1-2. What is the extent of golf-related injuries suffered from golf course accidents?
    1-3. What are the most commonly injured body parts?

1-4. What are the age and gender patterns of the plaintiffs in golf-related injuries?

1-5. What locations are associated with the most accidents?

1-6. What are the associations between each variable?

2. What are the characteristics of golf-injury lawsuits against a golf course?

2-1. Who are main plaintiffs in litigation?

2-2. What types of claims usually are brought against a golf course?

2-3. What types of legal defenses are usually raised by a golf course?

2-4. What are patterns of municipal and nonmunicipal golf courses in litigation?

2-5. What is the golf course's win rate in litigation?

2-6. What are the associations between each variable?

3. What factors are most influential in determining the golf course's success or failure in litigation?

3-1. Among the following factors, which best predict whether the golf course wins or loses in litigation?

i. Age

ii. Gender

iii. The leading causes of golf course accidents

iv. The severity of golf-related injuries

v. The most frequently injured body parts

vi. The accident sites

vii. Types of plaintiffs

viii. Types of claims

ix. Foreseeability

x. Known dangers to plaintiffs

xi. Types of legal defenses

xii. Types of golf courses

The Significance of the Study

The results of this study presented three types of information. First, it showed particular injury patterns among injured plaintiffs on or near golf courses due to errant ball, golf cart, lightning, and slip, trip, and fall accidents. Second, it indicated trends in golf-injury lawsuits against golf courses. Finally, it identified factors that may explain the golf course's success in litigation. The results of the study may help golf course managers design preventive measures for their golf courses. In the end, this study may contribute to the prevention of accidents or injuries occurring at golf courses and to a decrease in the number of lawsuits against a golf course.

Definition of Terms

Golf injury lawsuits: Lawsuits brought against a golf course due to golf ball, golf club, golf cart, lightning strike, and slip, trip, and fall accidents.

Age: The injured plaintiff's legal age in years.

Gender: The sex of the injured plaintiff.

The leading causes of golf course accidents: Major causes that lead the plaintiff to an injury or death, including golf ball, golf club, golf cart, lightning strike, and slip, trip, and fall accidents.

The extent of golf-related injuries: The seriousness of golf-related injuries suffered from golf ball, golf club, golf art, lightning strike, and slip, trip, and fall accidents.

The most frequently injured body parts: Areas of the body that the plaintiff is most likely to injure due to golf course accidents.

The accident sites: High accident locations on or near the golf course.

Types of plaintiffs: Potential plaintiffs in golf injury claims (e.g., golfers, spectators, employees, and neighbors or passersby).

Types of claims: Lawsuits brought against a golf course based on negligence, statute, product liability, nuisance, or multiple claims.

Legal defenses: Defenses to golf-injury lawsuits that golf courses can use (e.g., four elements not present, assumption of risk, contributory or comparative negligence, immunity, etc.).

Types of golf courses: Two types of golf courses where a potential plaintiff can bring a golf injury lawsuit (i.e., nonmunicipal or municipal golf courses).

Foreseeability: Determining whether the golf course anticipated or should have anticipated the injury to the plaintiff prior to the accident.

Known dangers to plaintiffs: Dangers that are obvious, reasonably apparent, or well known to a plaintiff.

Case outcome: The golf course's success or failure in litigation.

Limitations

- Because the cases for this study were selected from U.S. reported federal and state courts, the results of this study may not be directly applicable to other countries.
- Cases in this study were delimited to U.S. reported federal and state court cases involving golf-related injuries resulting from errant ball, golf club, golf cart, lightning, and slip, trip, or fall accidents.

- Cases in which a defendant is not a golf course were excluded from the study.

Assumptions

- It was assumed that the independent variables will be highly correlated with the dependent variable.
- It was assumed that the assumption on minimum expected cell frequency will be met.

Chapter 2

Review of Literature

This chapter is divided into six sections. The first examined specific patterns, based on the results of studies using golf-related injury statistics, of golf-related injuries caused by golf ball, golf club, golf cart, lightning, or by slip, trip, and fall accidents. The second discussed legal aspects associated with golf-injury lawsuits filed against a golf course due to those accidents. The third summarized methodological steps necessary for conducting quantitative content analysis that Neuendorf (2002) presented. The fourth investigated Clement and Otto's (2007) research to see how methodological steps for quantitative content analysis are applied to court-decision research regarding sports-related injuries. The fifth addressed the risk management needed to reduce golf-related injuries and to avoid such legal actions. The literature review finished with a summary of each section.

Golf-related Injuries from Golf Course Accidents

Some literature about golf-related injuries has indicated that they resulted from golf balls (DeVoto, 1993; Fountas, Kapsalaki, Machinis, Boev, Troup, & Robinson, 2006; Fradkin, Cameron, & Gabbe, 2006; Jayasundera, Franzco, & Joondeph, 2003; Scoffield, 2004; Tonner, Sawyer, & Hypes, 1999); golf clubs (DeVoto, 1993; Fountas et al., 2006; Fradkin et al., 2006; Jayasundera et al., 2003; Tonner et al., 1999); or golf carts (DeVoto, 1993; Flynn, 1996, 1997; Tonner et al., 1999; Waston, Mehan, Smith, & McKenzie, 2008). Additionally, it was found that lightning strikes (Cherington, 2001; Tonner et al., 1999) or slip, trip, and fall accidents (Fradkin et al., 2006; Tonner et al., 1999) also caused golf-related injuries.

Based on the review of the related literature, this section consisted of three parts: golf-related injuries from golf club and golf ball accidents, golf-related injuries from slip, trip,

and fall accidents, and golf-related injuries from lightning strikes. Each part included an accident profile of the injured people, including the most common sites of injury, the most common types of injury, age and gender patterns in injuries, and the locations of the injury.

Injuries from golf club and golf ball accidents. Golf course managers need to be aware of and concerned about golf-related injuries resulting from golf club or golf ball accidents. Many studies show that golf-related eye or head injuries can be caused by golf clubs or golf balls (Fountas et al., 2006; Fradkin et al., 2006; Jayasundera et al., 2003). Jayasundera et al. (2003) examined golf-related eye injuries using 11 patients treated at public hospitals in New Zealand between 1997 and 2002. Of those 11 patients, seven adults suffered eye injuries caused by a golf ball and four children were injured by a golf club. Eight of the injured were men and three were women between the ages of 9 and 59. The most common types of injury were "globe rupture and complications of blunt ocular trauma without rupture" (p. 110). Two patients were injured while watching a golf game. Four patients were injured while playing golf, and one was injured at a driving range.

Fountas et al. (2006) investigated golf-related head injuries in children aged 3 to 16. Of 33 children treated for a head injury at a hospital in the United States between 1994 and 2003, most of the children were struck by a golf club (69.6%) or a golf ball (24.2%). Nineteen boys and 14 girls were injured. The most common type of injury was a depressed skull fracture. Fourteen injuries (42.4%) occurred on a golf course, whereas 19 (57.6%) occurred in some other place.

Fradkin et al. (2006) analyzed golf-related injuries in golfers and found that of 547 patients presented to hospital emergency departments in Australia between 1997 and 2002, many golfers (69.8%) were injured by "a golf ball, club, or through a collision with another

person" (p. 46). Most patients (75.9%) were men. The most commonly injured body part was the head (35.5%), followed by eye (13.1%) and ankles (10.7%). As compared to other age groups, children 15 and younger tended to suffer "head, neck, and face injuries due to being struck by an object" (p. 47).

Injuries from slip, trip, and fall accidents. Slip, trip, and fall accidents can be another matter of concern to golf course managers. According to The Travelers Indemnity Co. (2013), an American insurance company, slip, trip, and fall accidents (33%) were the No. 1 cause of general liability claims against golf facilities, followed by vehicle-related incidents (23%) and being struck by an object (8%). The insurance company argued that golf courses could be more vulnerable to slip, trip, and fall accidents than other businesses due to "the rolling terrain, water hazards and various pathways and walkways" (The Travelers Indemnity Co., 2013, "An in-depth look at the top three loss leaders," para. 2).

Areas prone to slip, trip, and fall accidents include "stairs (either outdoors or indoors), wet floors, icy sidewalks, or holes around or on the fairway" (The Travelers Indemnity Co., 2013, "An in-depth look at the top three loss leaders," para. 2). As compared to other age groups, golfers 65 and older were at higher risk of fall accidents and were more likely to suffer lower extremity injuries (Fradkin et al., 2006).

Injuries from golf cart accidents. An important fact that golf course managers should be aware of is that since 1990, the number of golf cart-related injuries in the United States has been steadily increasing (Waston et al., 2008). Waston et al. (2008) used data from the National Electronic Injury Surveillance System (NEISS) to report that the number of golf cart-related injuries increased 132% between 1990 and 2006. During that time,

approximately 147,696 people aged 2 months to 96 years went to an emergency room for treatment of a golf cart-related injury.

Most of the patients were men (63.1%). Adults 16 and older (68.8%) were injured more often than children 16 and younger (31.2%). The No. 1 leading cause of injury was "falling or jumping from a golf cart (38.3%), followed by being struck or run over by a golf cart (16.2%) and then collision with another vehicle or stationary object (9.6%)" (p. 58). Most of the injuries to children were head and neck injuries (32.1%), whereas most adults suffered leg and foot injuries (40.9%). About 70% of the patients were injured at a recreational sports facility.

Injuries from lightning accidents. Given that golf is played outdoors, golf course managers require special care in protecting golfers and spectators from lightning strikes. Some elements are attributable to golfers' exposure to the dangers of lightning, including

- Long exposure during the lightning time of day (about four to five hours to complete 18 holes).
- A tendency to complete the game regardless of the threat of an approaching thunderstorm. It is better to seek safe shelter and live to play another day.
- There is a paucity of safe shelters (clubhouses, vehicles) on many courses.
- Golfers, too often, make the fatal mistake of seeking shelter under a single tree.
- The age of those who play golf might play a role (Cherington, 2001, p. 305).

According to the National Weather Service (NWS) *Storm Data*, lightning strikes caused 1,759 injuries and 278 fatalities in the United States between 2004 and 2011. During the same period, 12 lightning strike fatalities occurred on golf courses. This figure accounts for approximate 4% of the total lightning fatalities. Table 1 shows the results of the statistical data. Although the number of fatalities was not limited to golf courses, about 98% of the dead were men (n = 272). Florida (n = 37) had the highest rates of lightning fatalities, followed by Colorado (n = 18), Texas (n = 17), Georgia (n = 14), and North Carolina (n = 12).

Table 1

The Number of Injuries and Deaths by Lightning and Lightning Fatalities on Golf Courses over the Past Eight Years in the United States

Year	2004	2005	2006	2007	2008	2009	2010	2011
Number of injuries	280	309	246	138	216	201	182	187
Number of deaths	32	38	47	45	27	34	29	26
Fatalities on golf courses	3	3	2	1	0	1	1	1

Note. From *Storm Data* Compiled by the National Weather Service Office of Climate, Water, and Weather Services and the National Climatic Data Center.

Typical symptoms of people struck by lightning are "tympanic membrane rupture and arboreal burns" (Desai, 2011, p. 12). The most common cause of death from a lightning strike is cardiac arrest (Cooper, 1995). Lightning strikes also can damage the nervous system (Cherington, Yarnell, & London, 1995).

Legal Aspects in Golf-Injury Lawsuits against a Golf Course

Many authors used case law to address various theories of liability and defense concerning golf-related injuries on or near golf courses. DeVoto (1993) examined the liability of potential defendants (e.g., golfers, golf course owners, golf course designers, etc.) for personal injury to potential plaintiffs (e.g., golfers, spectators, or employees) due to golf ball, golf club, or golf cart accidents. He also addressed possible legal defenses to such golf-injury lawsuits.

Flynn (1996, 1997) examined liability on the golf course regarding golf cart accidents resulting from "golf course design and construction defects, negligent maintenance, and golf cart defects" (p. 127). He also discussed whether disclaimer clauses can be used as a defense

to golf cart injury claims and whether "a golf cart is classified as a motor vehicle and the consequences of motor vehicle classification" (p. 127).

Kircher (2001) focused on the liability of potential defendants (i.e., golfers, golf course owners, and golf equipment manufacturers) for golf-related injuries. Scoffield (2004) dealt with liability theories for potential plaintiffs (e.g., golfers, spectators, employees, and neighboring landowners), as well as defenses available to defendants in golf ball injury lawsuits. Tonner et al. (1999) analyzed golf lawsuits between 1973 and 1998 in terms of "personal injury, taxes and taxation, breach of contract, discrimination issues, nuisance, wrongful death suits, lien complaints, environmental protection, product liability, declaratory relief, property use, zoning, trademark infringement, and employee-related issues" (p. 126).

Based on a review of relevant literature, there are different types of potential defendants in golf injury lawsuits resulting from golf course accidents noted earlier, including "golfers, golf course owners, golf course designers and builders, the sponsor of a golf tournament, school golf teams, the employer of an injured employee, and manufacturers, servicers, or sellers of golf carts" (DeVoto, 1993, pp. 860-878). However, as the purpose of this study was to analyze legal cases concerning golf-injury lawsuits against a golf course, this section focused on potential plaintiffs in the litigation, types of claims against a golf course, the liability of golf course owners or managers for golf-related injuries, and legal defenses available to a golf course. Legal cases cited in this section was drawn from studies of court-decisions.

Types of plaintiffs in golf-injury lawsuits. Potential plaintiffs in golf-injury claims can be divided into four classes: golfers, spectators, employees, and people living or passing near a golf course. Golfers can be victims of errant balls (DeVoto, 1993; Scoffield, 2004;

Tonner et al., 1999); golf clubs (DeVoto, 1993; Tonner et al., 1999); golf carts (DeVoto, 1993; Flynn, 1996, 1997; Tonner et al., 1999); lightning strikes (Tonner et al., 1999); or slip, trip, and fall accidents (Tonner et al., 1999). Also, spectators at a golf tournament or employees of a golf course can suffer injuries due to an errant golf ball (DeVoto, 1993; Scoffield, 2004; Tonner et al., 1999). Even passersby or neighbors of a golf course can be casualties of errant balls (DeVoto, 1993; Scoffield, 2004; Tonner et al., 1999).

Types of claims against the golf course. The plaintiffs can bring a golf-injury claim against a golf course based on torts or statutes when they are injured by a golf course accident. The other plaintiffs, except an employee, can recover financially from injuries caused by golf course accidents. When an employee is injured by negligence of the employer while at work, the employee's claim against the owner is barred under workers' compensation legislation (Veron, 1990). For example, when a caddy was injured by a bad shot on the golf course, he was not permitted to bring a negligent lawsuit against the owner (*Harrison v. Montammy Golf Club*, 1988). In *Harrison*, the Superior Court of New Jersey, Law Division Bergen County, found that "as the plaintiff was a general employee of the golf club, he cannot sue the club because of the Workers Compensation Act" (p. 733).

A tort refers to "an injury or a civil wrong that has caused harm to a person or a person's property for which the courts will provide a remedy" (Clement, 2004, p. 13). Thus, the injured plaintiffs on or off of a golf course can bring a golf-injury claim against the golf course based on negligence, product liability, or nuisance theories (DeVoto, 1993; Kircher, 2001). Given that liability on a golf course can usually be determined by general principles of negligence when golfers or spectators on the golf course were injured (Kircher, 2001), the

most common type of tort that golf courses can face related to golf course accidents is negligence.

Another type of tort that golf course management should consider is product liability. Considering that golfers can be injured by any defects in a rented golf club or cart, the golf course owner may be liable for injuries under the legal theory (Kircher, 2001). People situated off of a golf course can bring nuisance actions against the golf course when they are hit by an errant golf ball (DeVoto, 1993; Kircher, 2001; Scoffield, 2004; Tonner et al., 1999). Finally, the injured plaintiffs can bring a golf injury lawsuit against golf courses using statutes because liability on a golf course may be determined by state and federal laws.

Negligence. Negligence is "an unintentional tort that injures an individual in person, property, or reputation" (van der Smissen, 2007, p. 36). Negligence occurs when a prudent professional fails to do what a reasonable person would have expected him or her to do under the same circumstances or when a prudent professional does something what a reasonable person would not have expected him or her to do under the same circumstances (van der Smissen, 2007). To prove negligence for personal injury suffered in a golf course accident, the injured plaintiff must establish four negligence elements (Sawyer, 2005): duty, breach of duty, proximate cause, and damage.

Duty. To initiate a negligence cause of action, it must be shown that the golf course owed a duty to the plaintiff. Golf course owners or managers have many legal responsibilities that they should take to protect patrons from unreasonable harm. However, one of their important duties can be derived from premises liability, for two reasons. The first reason is that golf course owners own their golf course premises. The second is that the potential plaintiffs — golfers or spectators — are considered to be invitees of the golf course when

they pay a fee for the game (*Reardon v. Country Club at Coonamessett, Inc*., 1968) or for watching a golf tournament (*Duffy v. Midlothian Country Club*, 1985).

Premises liability is "the duty of care of the owners or persons in possession of land to individuals injured on their property" (Clement, 2004, p. 17). The duty of the landowner usually is determined by the classification of the individual on the property (Sharp, 2007). Individuals on the property are sorted in four groups: "invitees, licensees, trespassers, and recreational users" (Sharp, 2007, p. 193). Because the greatest protection, under the law, is given to invitees (Clement, 2004), golf course managers should thoroughly understand what duties they owe to the invitees.

The duty owed by a golf course owner to an invitee is specified in the case of *Davis v. The Country Club Inc*. (1963). The Court of Appeals of Tennessee, Eastern Section, cited the cases of *Walls v. Lueking* and *Kendall Oil Co. v. Payne* to find that "the golf owner owed their invitees the duty of exercising reasonable care to keep the premises in a reasonably safe and suitable condition, including the duty of removing or warning against a dangerous condition which the owner knew or should have known in the exercise of reasonable care" (p. 309).

Breach of duty. When a golf course failed to exercise the duty of care owed to the plaintiff, the golf course owner breached the duty. As noted in the cases of *Broome v. Parkview* and *Kendall Oil Co. v. Payne*, an important factor in determining liability on the golf course is whether it had notice of a dangerous condition on the premises prior to the accident (as cited in *Davis v. The Country Club, Inc*., 1963, p. 309). For example, in *Ryan v. Mill River Country Club* (1986), the plaintiff golfer suffered injuries when the golf cart she was driving overturned while descending a golf cart path. The Court of Appeals of

Connecticut determined that the golf course owner was liable for the accident, reasoning that there was considerable proof to show that the golf course failed to warn the plaintiff about the rough surface of the path or to eliminate it despite the fact that the course was aware that similar accidents had occurred in the area.

However, courts hold that "a golf course owner is not an insurer of the safety of the patrons … nor is the owner required to maintain the course … in such condition that no accident could possibly happen to a patron" (*Panoz v. Gulf and Bay Corporation of Sarasota*, 1968, p. 301). Thus, under some circumstances, the liability for injury may not attach to the owner even if the plaintiff was injured on the golf course premises. For example, if the plaintiff knew of a dangerous condition on the golf course premises, the golf course may not have a duty to warn the plaintiff of the danger and may not be liable for the injury (*Pound v. Augusta National, Inc.*, 1981). In *Pound*, the plaintiff who planned to watch the golf tournament did not recover for injuries received in falling in the parking lot provided by the golf course because she was aware of the accident spot in the daytime and had been at the spot before. She further accepted that she knew that "the ground was slick and that she was walking on rocks" (p. 344).

Also, as one can see from the cases of *Broome v. Parkview* and *Kendall Oil Co. v. Payne*, there would be no liability on the part of the golf course when the injury was caused by "dangers that were obvious, reasonably apparent, or as well known to the invitee as the owner" (as cited in *Davis v. The Country Club, Inc*., 1963, p. 309). A good example of this is an injury suffered by an errant ball. Golf courses usually do not have a duty to warn golfers or spectators about a poorly hit, erratic shot. In *Baker v. Thibodaux* (1985), the Court of Appeal of Louisiana, Fourth Circuit, determined that the golf course owner was not liable for

an injury to the plaintiff caused by an errant shot, reasoning that the danger of being injured by an errant shot was an inherent part of the sport. In accord with the case of *Baker v. Thibodaux* (1985), in *Knittle v. Miller* (1985), the court found that an occasional stray shot was an ordinary risk and that spectators at a golf tournament were expected to accept the risk.

Proximate cause. The third element of negligence must require the plaintiff to establish that there was proximate cause between the injury and the failure of carrying out the duty of care. When determining proximate cause, courts will see whether the injury to the plaintiff was anticipated or should have been anticipated by the defendant prior to the accident (Clement, 2004). There may be a special relationship between sports facility owners and participants, but sports facility owners may not have a duty to take appropriate precautions to protect participants (van der Smissen, 2007). That is, the owner, as a reasonably prudent person, has a duty to take proactive measures to protect the participant only when the danger is anticipated by the owner (van der Smissen, 2007).

In a lighting accident on a golf course, foreseeability was an important factor in determining whether the allegedly negligent action of the golf course contributed to the injury (*Davis v. The Country Club, Inc.*, 1963). In *Davis*, the plaintiff brought a lawsuit against the golf course, asserting that the failure of the golf course to provide appropriate lightning-proof weather shelters caused the injury she had suffered. However, the Court of Appeals of Tennessee reasoned that the risk of the shelter being struck by lightning was so unforeseeable that it was unreasonable for the golf course to exercise reasonable care to protect the plaintiff from the dangers of lighting. The court held that the golf course did not have liability for the lightning injury.

Damage. The final element of negligence is that the plaintiff must suffer damages, such as "economic loss, physical pain and suffering, emotional distress, and physical impairment" (van der Smissen, 2007, p. 41), caused by the golf course's negligence. Minor injuries are not enough to initiate a negligence cause of action (Clement, 2004). Thus, the plaintiff must suffer considerable damages caused by the golf course's negligence.

Product liability. Product liability refers to "liability for harm caused by a consumer product" (Spengler, Anderson, Connaughton, & Baker III, 2009, p. 37). This legal theory can be applied to a situation where a plaintiff was injured by defective products (Claussen & Miller, 2007). Defective products fall into two categories (Clement, 2004): manufacturing defects and design defects. A manufacturing defect exists when the product is manufactured in an unsafe manner. A design defect occurs when the product is defectively designed.

Given that the law is aimed to enable plaintiffs to recover against those who manufacture or distribute defective products (Claussen & Miller, 2007), product liability may not be applicable to golf course owners who lease a golf cart to the golfers (*Bona v. Graefe*, 1972). In *Bona*, the plaintiff golfer was injured due to brake failure while driving a rented golf cart. Although the golfer filed a product liability lawsuit against the golf course based on breach of warranty and strict liability, the Court of Appeals of Maryland found that "both doctrines were limited to sales rather than leases of goods" (p. 607).

In other jurisdictions, however, the liability of a golf course owner as the lessor of a golf cart may be determined based on strict liability in tort (*Sipari v. Villa Olivia Country Club*, 1978) or negligence (*Cavers v. Cushman Motor Sales*, 1979). Strict liability refers to "a concept of liability regardless of fault" (Spengler et al., 2009, p. 38). For plaintiffs to win the

strict-liability claims, they are required only to establish that product defects occurred and that there was proximate cause between the defect and the injury (Spengler et al., 2009).

For example, in *Sipari v. Villa Olivia Country Club* (1978), the plaintiff golfer used strict liability to seek to recover from his injuries suffered when the rented golf cart turned over while driving it. The Appellate Court of Illinois, First District, Fourth Division, determined that the golf course owner who leased the golf cart to the golfer was strictly liable for injuries caused by the defective design of the golf cart, reasoning that the courts in *Dunham v. Vaughan & Bushnell Mfg. Co*., and *Galluccio v. Hertz Corp*. found that "the doctrine of strict tort liability applies not only to manufacturers but also to distributors and retailers, and lessors" (as cited in *Sipari v. Villa Olivia Country Club*, 1978, p. 824).

Also, in product liability claims, negligence may be established when a manufacturing defect or a design defect exists at the time of the accident or when the defendant fails to "warn about hidden risks that make a product unreasonably dangerous" (Claussen & Miller, 2007, p. 147). The case of *Cavers v. Cushman Motor Sales* (1979) shows that even if a rented golf cart did not have manufacturing or design defects, the liability for injury may attach to the golf course owner, the lessor of the golf cart, when the golf course "failed to warn of the golf cart's propensity tip over while turning and the absence of the warning made the user substantially dangerous" (p. 142).

Nuisance law. Nuisance refers to "an area of property law dealing with activity or use of one's property that produces material annoyance, inconvenience, and discomfort for those around the property" (Young, 2007, p. 187). When people passing by or living near a golf course are hit by an errant ball off the course, they can boost the likelihood of winning the

case using a nuisance claim against the golf course because the applicability of the assumption-of-risk doctrine is limited in nuisance lawsuits (DeVoto, 1993).

Errant balls detracted from a golf course can create one of the two types of nuisances (Tonner et al., 1999): public nuisance and private nuisance. A public nuisance occurs when the golf course interferes with the public's rights to use safely the "public highways, sidewalks or other public thoroughfares" (p. 137). For example, a golf course may commit a public nuisance when a passenger in a car is injured by a stray golf ball while the car is driving on a roadway abutting a golf course (*Gleason v. Hillcrest Golf Course*, 1933). Unlike a public nuisance, a private nuisance occurs when a golf course interferes with rights of an individual to enjoy his or her properties.

Two elements can be considered when courts determine whether a golf course creates a public nuisance: the design of a golf course and a notice of a danger. If a golf course is close to a highway and its proximity renders the public using it dangerous, the golf course may be held liable for creating a public nuisance (*Gleason v. Hillcrest Golf Course*, 1933). In *Gleason*, the Municipal Court of New York, Borough of Queens, Sixth District, held that the design of the course created a nuisance, reasoning that the first hole of the golf course adjacent to the highway was the proximate cause of the errant-ball accident.

In addition to the design of a golf course, a public nuisance can arise out of any notice of any similar incidents in the past (*Townsley v. State of New York*, 1957). In *Townsley*, the golf course knew that golf balls flying off the course entered the freeway. In spite of that prior knowledge, however, the course did not take proactive measures to protect people using the highway from stray golf balls. Eventually, the course was held liable for creating and permitting a public nuisance.

Similar to the case of *Gleason v. Hillcrest Golf Course* (1933), the design of a golf course can be a cause of action for a private nuisance (*Nussbaum v. Lacopo*, 1970). In *Nussbaum*, however, the Court of Appeals of the State of New York stated that just because the golf course was near the homeowner's land was not enough to constitute a nuisance. The court noted that a key element to create a nuisance was whether errant balls veering off the golf course continued to invade the neighbors' rights. Although the plaintiff homeowner asserted that errant balls landing on the plaintiff's property created a private nuisance, the court found that it would be difficult to say that a few sporadic golf balls landing down on the property repeatedly infringed on the plaintiff's rights. Furthermore, the court cited the case of *Patton v. Westwood Country Club* to find that "one who deliberately decides to reside in the suburbs on very desirable lots adjoining golf clubs and thus receive the social benefits and other not inconsiderable advantages of country club surroundings must accept the occasional, concomitant annoyances" (p. 765).

Statutes. If state and federal laws require golf courses to carry out safety precautions or abide by safety rules, they should comply with such laws. Otherwise, they will be liable. A good example of this is found in the case of *Webb v. Jessup* (1993). In *Webb*, the plaintiff as a passenger of a golf cart was injured because the driver of the cart ran through a red light at a public road intersecting the golf club. At the time of the accident, the vehicle rented without a driver statute, an Arizona statute, stated that "Any vehicle operated, moved or left standing on any highway of this state, unless exempt, must be registered with the Department of Motor Vehicles" and that "The owner of a motor vehicle who rents it to another without a driver… without having procured the required public liability insurance… shall be jointly and severally liable with the renter for damage caused by the negligence of the renter

operating the motor vehicle" (p. 261). However, the golf course did not register the golf cart and have public liability insurance for the cart to be used on public highways. Pursuant to the statute, the Court of Appeals of Arizona held that joint and several liability was applicable to the golf course.

Possible defenses to golf-injury lawsuits. Keeping in mind that most golf-injury claims against a golf course are brought on the basis of negligence theories (Tonner et al., 1999), golf course managers need to fully understand possible defenses to negligence claims. The best way to win a claim of negligence is that a golf course must show that any one of the four elements of negligence is not proven (Cotten, 2007). Additional defenses to negligence claims include "assumption of risk, comparative negligence, contributory negligence, and governmental immunity" (Sawyer, 2005, pp. 42-43).

Also, in some golf-cart accident injury claims where strict liability is applied, defenses available to the golf course may include "assumption of risk, misuse, and disclaimers" (*Sipari v. Villa Olivia Country Club*, 1978, p. 823). Finally, when a nuisance claim is brought, the golf course may raise certain defenses such as "lack of notice or lack of foreseeability" (*Nussbaum v. Lacopo*, 1970, p. 765).

Defenses to negligence claims. As noted, four elements must be required to establish negligence for an injury suffered by the golf course: duty, breach of duty, proximate cause, and damage. If one of the four elements has not been met, no liability can be found on the part of the golf course.

Another defense available to the golf course is assumption of risk. Assumption of risk means that the plaintiff accepts to some degree liability for an injury by assuming some parts of the risk of participating in a sport activity (Clement, 2004). The case of *Knight v. Jewett*

indicates that there are two types of assumption of risk that golf courses can use as a defense against the plaintiff's negligence claims (as cited in *Morgan v. Fuji Country USA*, 1995, p. 251): primary assumption of risk and secondary assumption of risk.

Under primary assumption of risk, a golf course can avoid liability if it can prove that "(a) the plaintiff has knowledge of risks inherent in the game of golf, (b) the plaintiff knows the condition is dangerous, (c) the plaintiff appreciates the nature or extent of the danger, and (d) the plaintiff voluntarily exposes her/himself to the danger" (Sawyer, 2005, p. 42). Considering that the danger of being injured by an errant ball is an inherent part of the sport, golfers or spectators usually are expected to accept the risk while participating in the sport or watching a golf tournament (*Baker v. Thibodaux*, 1985; *Knittle v. Miller*, 1985). The extent to which the injured plaintiff appreciates the risks can be determined by "the age of the plaintiff, experience of the plaintiff, and opportunity of the plaintiff to become aware of the risk" (Cotten, 2007, p. 62).

On the other hand, secondary assumption of risk is applied to a situation where the defendant's duty of care exists but the plaintiff voluntarily assumes a risk created by the defendant's negligence (Clement, 2004). In contrast to primary assumption of risk, secondary assumption of risk is not a complete bar to the plaintiff's recovery (Clement, 2004). For example, in *Morgan v. Fuji Country USA* (1995), the Court of Appeal of California applied secondary primary assumption of risk to the errant-ball case, reasoning that the golf course liability may occur when it negligently fails to maintain the premises in a reasonably safe condition. Thus, it is important to note that golf courses may be obligated to "design a golf course to minimize the risk of being hit by a bad golf shot, e.g., by the way the various tees, fairways and greens are aligned or separated" (*Morgan v. Fuji Country USA*, 1995, p. 253)

and protect golfers from poorly hit errant shots where the greatest risk is placed and such an accident is reasonably predictable.

In addition to the assumption-of-risk doctrine, contributory or comparative negligence can be used as one defense against a negligence claim. Contributory negligence occurs when a plaintiff is held responsible for some portion of the injury (Sawyer, 2005). In states where this doctrine is applied, plaintiffs can be barred from recovery even if they contributed in part to the injury they suffered (Nohr, 2009).

In states where comparative negligence is applied, in contrast, the plaintiff's recovery can be reduced based on the degree to which the plaintiff contributed in part to the injury (Nohr, 2009). In *Duffy v. Midlothian Country Club* (1985), the jury held that the spectator, the victim of the errant ball, was awarded $498,200, reasoning that the accident was caused by the negligence of the defendants, the golf course and the Western Golf Association (WGA). Eventually, however, the plaintiff was awarded $448,380, an award reduced by 10% due to her own contributory negligence.

Finally, one defense that a municipal golf course can raise is governmental immunity. Local, state, or federal governments may be immune from tort claims unless they consent to be sued (Sawyer, 2005). Under the doctrine of governmental immunity, public golf courses have been exempted from tort claims because they are thought of as governmental entities (Sawyer, 2005). However, some statutes (e.g., the Federal Tort Claims Act or state tort claims acts) can allow public entities to be brought against tort claims under some situations (Nohr, 2009). For example, in Kansas jurisdictions, governmental immunity will not be granted when golf-related injuries on a public golf course occur due to the golf course's gross and wanton negligence (*Gruhin v. City of Overland Park*, 1992).

Defenses to product liability claims. The most common defense in product liability claims is assumption of risk (Clement, 2004). For the assumption-of-risk defense to apply, the golf course must show that the injured plaintiff was aware of a manufacturing or design defect and that the plaintiff voluntarily accepted the risk (*Sipari v. Villa Olivia*, 1978). In *Sipari*, the golf course owner, the lessor of the golf cart, did not defeat the strict liability claim based on assumption of risk. The Appellate Court of Illinois noted that the golf course failed to prove that the plaintiff knew the defective design of the golf cart and voluntarily accepted the danger. Ultimately, the court determined that the golf course was strictly liable for the injuries resulting from the defective design of the golf cart.

Another defense available to a golf course is misuse, which is considered the "mishandling, abuse, or the use of a product for abnormal purposes" (Clement, 2004, p. 92). If a defendant shows that the plaintiff misused a product either in an unintended way or in an unforeseeable way, the defendant may avoid liability for injuries suffered from the use of the product (*Sipari v. Villa Olivia Country Club*, 1978). In *Sipari*, the golf course asserted that the plaintiff's misuse of the golf cart led to the injuries. However, the court determined that "the plaintiff was using the golf cart for an intended purpose at the time of the accident" (p. 825).

Finally, disclaimer clauses in the golf cart rental ticket can be used by the golf course owner as the lessor of golf carts to avoid its liability in a strict-liability claim (*Sipari v. Villa Olivia Country Club*, 1978). In strict-liability cases, however, such disclaimers do not seem to protect the golf course owner effectively. In *Sipari*, the court determined that "the exculpation clause here did not function to preclude the imposition of strict liability on the golf course" (p. 824).

Defenses to nuisance claims. One defense available to a golf course against a nuisance claim is a lack of notice of errant balls flying off of the golf course (*Nussbaum v. Lacopo*, 1970). In *Nussbaum*, the plaintiff did not present evidence that errant balls landing on the plaintiff's land were frequent occurrences. Therefore, the Court of Appeals of New York found that such infrequent occurrences did not establish a nuisance and did not require the golf course to take proactive measures to protect the plaintiff neighbor from errant balls.

In a public nuisance claim, however, this defense does not seem to bar a plaintiff from recovery. For example, in *Gleason v. Hillcrest Golf Club* (1933), the golf course asserted that it was not held liable for injuries to a passenger of a car driving on a roadway abutting the golf course, based on the fact that there never had been errant balls entering on the highway. Despite the lack of notice, the court determined that the golf course was liable for the plaintiff's injuries, reasoning that it was foreseeable that an errant ball flying off the golf course would hit a car on the highway near the golf course. Thus, to avoid liability, golf courses are required to prove lack of foreseeability.

The *Nussbaum* case shows how unforeseeability can be used as another defense to a nuisance claim. In *Nussbaum*, the court held that the golf course was not liable for the neighbor's injuries suffered by the errant ball from the golf course, reasoning that "the present accident, involving dense rough impassable by a ball with any great force remaining and high tress over which only one ball was shown to have passed, was unforeseeable" (p. 763).

Content Analysis

Content analysis is "a summarizing, quantitative analysis of messages that relies on the scientific methods (including attention to objectivity-intersubjectivity, a priori design,

reliability, validity, generalizability, replicability, and hypothesis testing), and is not limited as to the types of variables that may be measured or the context in which the messages are created or presented" (Neuendorf, 2002, p. 10). An advantage of content analysis is that it is an unobtrusive measure (Trochim & Donnelly, 2008). Webb, Campbell, Schwartz, Sechrest, and Grove stated that "unobtrusive measures are measures that allow the researcher to gather data without becoming involved in respondents' interaction with the measure used" (as cited in Trochim & Donnelly, 2008, p. 150). The following set of procedures are required to conduct quantitative content analysis:

- Theory and rationale
- Conceptualizations
- Operationalizations
- Coding schemes
- Sampling
- Training and pilot reliability
- Coding
- Final reliability
- Tabulation and reporting (Neuendorf, 2002, pp. 50-51)

Theory and rationale and conceptualizations. Using relevant theory or past research, researchers establish hypotheses or research questions. Researchers can choose either hypotheses or research questions, depending on whether they can predict relations between variables. If researchers cannot explain the predictions due to the absence of the literature relevant to a particular topic, research questions, rather than specific hypothesis statements, should be used.

In addition to developing hypotheses or research questions, the constructs that the research is intended to measure should be defined in this phase. That is, the researcher is required to select and specify the variables needed to test the hypotheses or the research questions.

Operationalization and coding schemes. Operationalization is "the process of developing measures" (p. 118). In terms of content analysis, operationalization refers to the development of a coding scheme. Coding categories are created in the process of developing a coding scheme. At this moment, the evidence of face and content validity may be established to determine whether the coding scheme includes the concept to be measured. Additionally, researchers should make sure that each recoding unit is included in a coding category (i.e., exhaustive) and that each recoding unit is coded in only one category (i.e., mutually exclusive). Furthermore, researchers should try to use the highest possible level of measurement to measure variables.

For human-coded content analysis, coding schemes are developed by creating a code book and coding form. A code book is a detailed description of the variables to be measured in the research. A coding form "provides spaces appropriate for recording the codes for all variables measured" (p. 132).

Sampling. Sampling is "the process of selecting a subset of units for study from the larger population" (p. 83). If the population size is relatively small, researchers may not need to select a sample because the entire population can be used in the research (i.e., census). In most cases, however, researchers cannot include the entire population in the research due to the large sizes of populations. Thus, to increase the degree to which a sample is representative of the population (i.e., external validity), random-sampling techniques can be used, including "simple random sampling, systematic random sampling, cluster sampling, stratified sampling, multistage sampling, and combinations of random sampling techniques" (pp. 83-87). Nonrandom-sampling techniques also are available when random sampling

techniques are not feasible, including “convenience sampling, purposive or judgment sampling, and quota sampling” (pp. 87-88).

Training and pilot reliability, coding, and final reliability. Given that improper coder training leads to a threat to reliability, thorough training of coders is required in content analysis. As a way of training coders, the codebook may continue to be modified by the researcher “until researcher and coders are all comfortable with the coding scheme” (p. 133). Practice coding can be an additional way of training coders.

Carmines and Zeller defined reliability as “the extent to which a measuring procedure yields the same results on repeated trials” (as cited in Neuendorf, 2002, p. 141). In human-coded content analysis, the term “reliability” can be used to refer interchangeably to “intercoder reliability or the amount of agreement or correspondence among two or more coders” (p. 141). Thus, it is recommended that two or more coders are used to check intercoder reliabilities.

To develop a more reliable coding scheme, pilot testing should be administered before actual coding begins. If any problems in the coding scheme are found during the pilot test, they should be modified or corrected before the coding begins. In addition to the pilot test, the final intercoder reliability test is required to make sure to “represent the coders’ performance throughout the study” (p. 146).

Several coefficients can be used to calculate the intercoder reliabilities, including “percent agreement, Scott’s pi, Cohen’s kappa, Krippendorff’s alpha, Spearman rho, and Pearson r” (p. 148). Reliability coefficients above .9 would be considered excellent; above .8 would be considered sufficiently reliable; and below .8 would be considered questionable.

Tabulation and reporting. After the data have been coded, the results should be shown based on the proposed hypotheses or research questions. Numerous statistical techniques can be used to analyze the coded data and to present the findings, including "inferential, noninferential, univariate, bivariate, and multivariate statistics" (pp. 168-169).

Clement and Otto's (2007) Research Design

Although Clement and Otto's (2007) research did not directly analyze court decisions concerning golf-related injuries, the research design is informative for this study because it applied methodological steps for quantitative content analysis in analyzing legal cases concerning sports-related injuries.

The study's main question was twofold: to examine accident profiles of injured plaintiffs in headfirst aquatic accident-related lawsuits quantitatively and to identify the key factors that can affect the plaintiff's success in such litigation. To answer the questions using quantitative content analysis, the first step carried out by Clement and Otto was to find cases necessary for conducting the study and to ensure that those cases selected represented the whole population. They used the LexisNexis Academic Universe database to obtain 247 reported headfirst aquatic accident cases in federal court and state court decisions. To make sure that a headfirst aquatic accident case was adequate as a sample for the study, the researchers selected only cases in which a plaintiff had to be injured on the head when entering the water headfirst in the context of sport or recreation.

As the second step, the researchers extracted important variables from the cases selected and then coded the variables. Variables considered vital for the study were identified by analyzing the content of the cases. The variables included " age of injured party, sex of injured party, type of injury or death, location of or type of water entry behavior of

participant, environment in which incident occurred, type of claim, and the case outcome" (p. 110). The independent variables of the study were "gender [male/female]; age [adult/minor]; type of injury [died, paraplegic/quadriplegic, or severely injured]; location of or type of water entry [above-ground pool, board dive, boat, pier/dock, etc.]; type of claims [negligence, premise liability, products liability, and immunity]; and the environment in which the incident occurred [home, hotel/motel, lake, etc.]" (pp. 110-111). The dependent variable of the study was "case outcome [finding for the plaintiff, finding not for the plaintiff, or remand/case in process]" (p. 111).

Finally, the researchers analyzed the cases using quantitative analysis. Two types of quantitative methods were conducted to answer the research questions: descriptive statistics and logistic regression. Descriptive statistics were used to show who the injured plaintiffs were, why or where they were injured, and what types of claims they brought. Additionally, binary logistic regression was run to determine which independent variables best predict whether a plaintiff wins or loses in headfirst aquatic accident-related lawsuits.

Golf Course Risk Management Concerning the Golf Course Accidents

Risk management is defined as "reducing or eliminating the risk of injury and death and potential subsequent liability that comes about through involvement with sport and recreation programs and services" (Spengler, Connaughton, & Pittman, 2006, p. 2). What is important here is that risk management cannot remove all risks inherent in sports activities (Ammon & Brown, 2007). Instead, risk management helps sports organizations not only reduce legal liabilities they can face but also improve their reputation by identifying, evaluating, and controlling risks inherent in programs and services they provide (Clement, 2004).

To develop an effective risk management plan, golf course managers should consider a few key components (Sawyer, 2005): assemble a risk management committee, identify risks, treat risks, implement the plan, and evaluate the plan. The first thing a golf course manager should do in the risk management process is to compose a risk management committee. This is a body of individuals who will develop and supervise a risk management plan. The manager works as the coordinator of the committee, and the committee takes professional advice from an attorney or an insurance professional. The key tasks of the committee are to develop a risk management philosophy or policy for the golf course, identify risks on the golf course, treat the risks, implement the risk management plan, and evaluate the plan.

The second step in the risk management process is risk identification (Sawyer, 2005), which is one of the most important components of a sound risk management plan (Ammon & Brown, 2007). Without identifying potential risks associated with golf-related injuries, the golf course manager will have difficulties treating the risks. Using the results of an unpublished study, Sawyer (2005) described several potential risks that golf course managers should identify in the risk identification process. The results presented here are limited to the possible risks concerning errant ball, golf club, golf cart, lightning, and slip, trip, and fall accidents. The risks include:

- Poorly maintained cart paths with potholes and drop-offs.
- Bridges with handrails or safety barrier.
- Lack of guardrails on cart paths with steep drop-offs.
- Lack of proper markings in areas where both vehicle and cart traffic are present.
- Lack of tee box protection from errantly hit balls.
- Lack of protection for passing vehicles on main highway.
- Lack of proper drainage/standing water on cart paths.
- Dangerous cart path locations.
- Lack of directional signage for cart paths.

- Lack of speed limit or other control signage on cart paths.
- Lack of tree grooming near cart paths.
- No of lightning-safe shelters.
- Lack of a weather warning system (as cited in Sawyer, 2005, pp. 148-149).

After the risks have been identified, they should be evaluated on the basis of the frequency and severity of the risk (Sawyer, 2005). Frequency means "how often the risk may occur, and severity means "the degree of the potential loss arising from the risk" (Ammon & Brown, 2007, p. 291). A risk category matrix (RCM) can be used to effectively evaluate the frequency and severity of the risk (Ammon & Brown, 2007). Table 2 shows how errant ball and lighting accidents can be categorized based on the results of studies using statistics of golf-related injury. If injuries from errant balls are frequent, but their severity is critical, they can be considered as a risk with high frequency and a critical degree of injury. If lightning injuries are rare, but their severity is catastrophic, they will be categorized as a risk with low frequency and a catastrophic degree of injury.

The third step in the risk management process is risk treatment. The identified and evaluated risks should be treated using the following four methods (Sawyer, 2005): risk avoidance, risk transfer, risk retention, and risk reduction. Risk avoidance means that golf course managers do not intentionally embrace the risks occurring on their premises. For example, if golfers continue to die on the golf course due to lightning strikes, the golf course manager can decide to close the golf course each time a lightning strike is imminent. However, it should be noted that risk avoidance is not the best way to treat the risk in that sports organizations opting for this method will eliminate the activities they are providing (Ammon & Brown, 2007).

Table 2

Risk Category Matrix

	Severity of Injury or Financial Impact			
	Catastrophic	Critical	Moderate	Low
High frequency		▪ "Globe rupture and complications of blunt ocular trauma without rupture" (Jayasundera et al., 2003, p. 110) ▪ A depressed skull fracture (Fountas et al., 2006) ▪ Head, eye, ankles injuries (Fradkin et al., 2006)		
Medium frequency				
Low frequency	▪ Cardiac arrest (Copper, 1995)			

Note. From *Risk Management Process* by R. Ammon and M. T. Brown, 2007, Dubuque, IA: Kendall/Hunt Publishing Co.

Risk transfer is a way to shift liability on the golf course to potential plaintiffs (e.g., golfers, spectators, etc.) or to insurance providers (Sawyer, 2005). For example, a waiver can be a good way to transfer the liability for injury to golf participants by informing them about potential risks (Sawyer, 2005). Ultimately, it will keep not only the potential plaintiff from suing the golf course but will enable the assumption of risk (Sawyer, 2005). Also, liability or employee insurance can be secured to pay the compensation facing the golf course for injuries and related expenses (Sawyer, 2005).

Risk retention means that the golf course intentionally keeps the risks by taking appropriate measures (Sawyer, 2005). If a golf course has steep cart paths, a manager can inform golf cart users about the risk by posting warning signs (Hurdzan, 1990).

The final method to treat the risks is risk reduction (Sawyer, 2005). By taking proactive measures, a golf course manager can reduce the frequency and severity of the risk (Ammon & Brown, 2007). There are a few precautions to be considered as risk reduction (Sawyer, 2005):

- Fences.
- Lightning protected shelters.
- Regular inspections.
- Maintenance schedules.
- Staff training (pp. 150-151).

To determine the appropriate treatment for the risks, a risk treatment matrix (RTM) can be used based on the frequency and severity of the risk (Ammon & Brown, 2007). For example, if a golf course manager evaluates lightning accidents as a risk with low frequency and yet with a catastrophic degree of injury, the manager can take transfer (e.g., liability issuance) and reduction (e.g., lighting proof shelters) strategies based on the RTM. Table 3 shows ways to treat the identified and evaluated risks.

Table 3

Risk Treatment Matrix

	Severity of Injury or Financial Impact			
	Catastrophic	Critical	Moderate	Low
High frequency	Avoidance	Avoidance	Transfer and reduction	Transfer/retain and reduction
Medium frequency	Transfer/avoidance and reduction	Transfer/avoidance and reduction	Transfer and reduction	Retain and reduction
Low frequency	Transfer and reduction	Transfer and reduction	Transfer/retain and reduction	Retain and reduction

Note. From *Risk Management Process* by R. Ammon and M. T. Brown, 2007, Dubuque, IA: Kendall/Hunt Publishing Co.

The fourth step in the risk management process is implementation of the risk management plan. A golf course manager has a responsibility to implement the plan

successfully. The manager should check if the following factors should be included in the plan, such as “waiver and release form, agreement to participate, golf risk assessment tool, golf cart inspection form, warning, injury report, tournament checklist, maintenance report, inspection monitoring report, an emergency action plan for preparing certain emergency situations, and a well-established training program for the golf course staff” (Sawyer, 2005, p. 151).

The final step is an evaluation of the risk management plan. To evaluate whether the plan is going well, the manager should make an annual report (Sawyer, 2005), and it would include the following information (Sawyer, 2005, pp. 151-152).

- A review of current dangers and risks.
- An update on progress being made to reduce risks and improve facility safety.
- A review of facility maintenance.
- A review of staff training that has taken place.
- A review of all accidents and injuries.
- A review of current and pending litigation.
- Recommendations for changes in policies and procedures.
- Maintenance needs.
- Additional facilities needed to improve safety.

Summary

Based on relevant literature, this chapter investigated accident profiles of people who suffered injuries on a golf course, legal aspects associated with golf-injury lawsuits against a golf course, methodological steps for quantitative content analysis, the application of the steps in analyzing legal cases about sports-related injuries, and risk management necessary for minimizing golf-related injuries and subsequent legal actions.

In relation to the ratio of men to women in golf-related injuries, men tended to be at a higher risk of golf course accidents. Also, it was found that the most commonly injured body parts and the most common types of injury would vary by types of golf course accidents or

age. Additionally, golf-related injuries were found to have occurred at a recreational sports facility, on a golf course, at home, and elsewhere.

Regarding golf-injury lawsuits against the golf course, different types of plaintiffs in the litigation were examined, including golfers, spectators, employees, and passersby or neighbors of a golf course. Plaintiffs other than golf course employees would bring a golf-injury lawsuit against the golf course based on negligence, product liability, or nuisance theories. The golf course would avoid legal liability for an injury using the following defense theories: four elements not present, assumption of risk, contributory or comparative negligence, governmental immunity, misuse, disclaimer clauses, lack of notice, and unforeseeability.

Additionally, this chapter examined the methods and procedures needed to conduct the quantitative content analysis that Neuendorf's (2002) presented and Clement and Otto's (2007) used in their research.

Finally, this chapter discussed the need for risk management concerning golf course accidents, the definition of risk management, and several components that golf course managers should consider in developing an effective risk management program.

Chapter 3

Methodology

The purpose of this study was threefold: (a) to identify specific injury patterns in injured plaintiffs on or near golf courses due to golf ball, golf club, golf cart, lightning strike or slip, trip, and fall accidents; (b) to examine the characteristics of golf-injury lawsuits brought against golf courses; and (c) to determine influential factors that can affect a golf course's success in litigation. For these purposes, the study analyzed legal cases concerning golf-related injuries based on the methodological steps for conducting quantitative content analysis that Neuendorf (2002) presented and Clement and Otto (2007) used in their research, including case selection, coding scheme, validity and reliability, coding, and statistical analysis.

Case Selection

The LexisNexis legal search engine was used to find legal cases for this study. The cases of the study included 147 reported federal court and state court decisions between 1930 and 2013. To select legal cases relevant to the research questions, the following search keywords were entered, such as golf-related injuries, golf courses, errant ball accidents, golf club accidents, golf cart accidents, lightning strikes, slip, trip, and fall accidents, and tort laws. To ensure that each particular case of a golf-related injury was included in the cases, a plaintiff had to be injured by one of the golf course accidents resulting from golf ball, golf club, golf cart, lightning strike or slip, trip, and fall accidents.

Coding Scheme

Key variables for this study were obtained using the content of the selected cases. Golf-related injury literature, as an early form of content analysis, guided whether any

variables were of particular importance to the study. The variables for this study were categorical variables, and they were measured on a nominal scale or an ordinal scale.

To measure accident profiles of injured plaintiffs on or near golf courses, the following variables were extracted from the cases: (a) age, (b) gender, (c) the leading causes of golf-related injuries, (d) the severity of golf-related injuries, (e) the most frequently injured body parts, and (f) the accident sites. Age was divided into two groups: minor and adult. Gender consisted of two groups: male and female. The leading causes of golf-related injuries were divided into five categories: golf ball, golf club, golf cart, lightning strike, and slip, trip, and fall accidents. The severity of golf-related injuries was categorized into three groups: minor, severe, and death. The most commonly injured body parts included four categories: head, lower body, upper body, and other. The accident sites were divided into four categories: on the golf course, off the golf course, around the clubhouse, and in a parking area.

To measure the characteristics of golf-injury lawsuits against a golf course, the following variables were extracted from the cases: (a) types of plaintiffs, (b) types of claims, (c) types of legal defenses, (d) types of golf courses, and (e) case outcome. Types of plaintiffs consisted of three categories: invitee, noninvitee, and other. Types of claims included five categories: negligence, statute, product liability, nuisance, and multiple claims. Types of legal defenses consisted of five categories: four elements not present, assumption of risk, immunity, other, and multiple defenses. Types of golf courses had two categories: municipal and nonmunicipal golf courses. Case outcome included three groups: the golf course's success, the golf course's failure, and remand.

To measure the most influential factors that can affect a golf course's success in litigation, the following variables were extracted from the cases: (a) age, (b) gender, (c) the leading causes of golf-related injuries, (d) the severity of golf-related injuries, (e) the most frequently injured body parts, (f) the accident sites, (g) types of plaintiffs, (h) types of claims, (i) foreseeability, (j) known dangers to plaintiffs, (k) types of legal defenses, (l) types of golf courses, and (m) case outcome. Foreseeability was divided into two groups: yes and no. Known dangers to plaintiffs had two categories: yes and no. Case outcome consisted of two categories: the golf course's success in litigation and the golf course's failure in litigation.

Validity and Reliability

To assess the validity and reliability on coded data, a panel of experts was formed, and the Cohen's kappa reliability test was administered before the results were reported. While developing the coding scheme for this study, a panel of experts was asked whether the coding scheme included the concept to be measured, in order to provide the evidence of content validity. The participating experts were the three full-time faculty members of the University of New Mexico in the sport administration program and one full-time faculty member of New Mexico Highlands University in the sport administration program. If any problems in the coding scheme were found, they were corrected. Additionally, the Cohen's kappa reliability test was conducted to measure inter-rater agreement for categorical variables between two coders.

Coding

After the codebook (Appendix A) was developed, it was given to another coder, a graduate student in the department of sport administration at the University of New Mexico. At the same time, the coder was trained with detailed instructions on the variables used in the

study and the levels of measure associated with the variables. The researcher and the coder coded the 147 legal cases according to the same coding scheme individually.

Statistical Analysis

The coded data was analyzed using the SPSS program. Considering that the selected variables for this study are categorical variables, descriptive statistics for categorical variables were used to summarize the variables. The association between variables was analyzed with a chi-square test for independence. Binary logistic regression was performed to predict the influence of two or more categorical independent variables on a dichotomous dependent variable.

Descriptive statistics for categorical variables. To answer the research questions regarding the characteristics of golf-related injuries on or near golf courses and the characteristics of golf-injury lawsuits against golf courses, the variables concerning the accident profiles of injured plaintiffs and the characteristics of golf-injury lawsuits were analyzed using frequencies and percentages to show how many times each category appears in the data.

Chi-square test for independence. A chi-square test for independence was run to determine whether the relationship between two categorical variables was significant. The assumption on minimum expected cell frequency was checked. It is known that the assumption is tenable when "at least 80 percent of cells have expected frequencies of 5 or more" (Pallant, 2010, p. 219). When the assumption is not met, it would be difficult to conclude whether there was a significant relationship between two categorical variables (Mehta & Patel, 2011). Thus, the exact method was used to calculate the significance of

relationships between two categorical variables when the assumption was not met (Mehta & Patel, 2011).

Binary logistic regression. To determine certain factors that can affect a golf course's success in golf litigation, binary logistic regression was performed. Reference coding was used to compare each level to a reference group. The reference group is "the factor with a large or mean number of cases so that a stable statistical comparison can be made" (Clement & Otto, 2007, p. 111). Table 4 shows the reference groups for this study.

Multicollinearity can be a problem in logistic regression because it indicates that one or more of the independent variables are highly correlated with one or more of the other independent variables (Pallant, 2010). Whether there is multicollinearity can be found based on "the magnitude of the standard error (SE) of each variable" (Chan, 2004, p. 151). In other words, when multicollinearity occurs, the standard errors of the variables can be very large (Chan, 2004). To deal with multicollinearity, "the variable with largest SE continued to be omitted until the magnitude of the SEs hovered around .0001 – 5.0" (p. 151).

Table 4

Categorical Variables Codings

			Parameter coding			
		Frequency	(1)	(2)	(3)	(4)
Gender	Male	75	0			
	Female	45	1			
Age	Adult	108	0			
	Minor	12	1			
Cause of accident	Golf ball	54	0	0	0	
	Slip, trip, and fall	34	1	0	0	
	Golf cart	30	0	1	0	
	Lightning	2	0	0	1	
Severity of injury	Minor	75	0	0		
	Severe	41	1	0		
	Death	4	0	1		

			Parameter coding			
		Frequency	(1)	(2)	(3)	(4)
Injured body part	Other	50	0	0	0	
	Head area	39	1	0	0	
	Lower body	23	0	1	0	
	Upper body	8	0	0	1	
Location of injury	On the golf course	100	0	0	0	
	Off of the golf course	9	1	0	0	
	Clubhouse	7	0	1	0	
	Parking lot	4	0	0	1	
Type of plaintiff	Invitee	105	0	0		
	Noninvitee	14	1	0		
	Unknown	1	0	1		
Type of claim	Negligence	101	0	0	0	0
	Statute	6	1	0	0	0
	Product	4	0	1	0	0
	Nuisance	2	0	0	1	0
	Multiple	7	0	0	0	1
Defense	Four elements not present	54	0	0	0	0
	Assumption of risk	19	1	0	0	0
	Immunity	9	0	1	0	0
	Other	9	0	0	1	0
	Multiple	29	0	0	0	1
Type of golf course	Nonmunicipal	91	0			
	Municipal	29	1			
Known risk to plaintiff	No	82	0			
	Yes	38	1			
Foreseeability	No	96	0			
	Yes	24	1			

Note. The logistic regression was run with the 120 cases.

Chapter 4

Results

The study used quantitative content analysis to code 147 federal court and state court decisions regarding golf-related injuries. The coded data were analyzed using descriptive statistics for categorical variables, a chi-square test for independence, and binary logistic regression. This chapter presents the findings of analyzing the coded data in the following order: results of reliability analysis, descriptive statistics results, results of the chi-square test for independence, and logistic regression results.

Results of Reliability Analysis

The Cohen's kappa reliability test was conducted to measure inter-rater agreement for categorical variables between two coders. The reliability test was done with the following variables, including gender, age, cause of golf course accident, severity of injury, injured body part, location of injury, type of plaintiff, type of claim, type of legal defense, type of golf course, known risk to plaintiff, foreseeability, and case outcome.

Table 5 shows the inter-rater reliabilities for the coders regarding the variables noted earlier. Peat indicated that "a value of .5 for kappa represents moderate agreement, above .7 represents good agreement, and above .8 represents very good agreement" (as cited in Pallant, 2010, p. 226). Based on this guideline, the levels of agreement between two coders regarding the variables were very good.

Table 5

The Levels of Agreement between Two Coders

Variables	Kappa Coefficients	P-value
Gender	1.00	.000
Age	1.00	.000
Cause of golf course accident	1.00	.000
Severity of injury	.84	.000
Injured body part	.81	.000
Location of injury	.82	.000
Type of plaintiff	.85	.000
Type of claim	.82	.000
Type of legal defense	.84	.000
Type of golf course	.86	.000
Known risk to plaintiff	.84	.000
Foreseeability	.82	.000
Case outcome	.82	.000

Descriptive Statistics Results

Descriptive statistics for categorical variables were run to investigate the accident profiles of injured plaintiffs on or near golf courses and the characteristics of golf-injury lawsuits against golf courses. The variables regarding the accident profiles of injured plaintiffs and the characteristics of golf-injury lawsuits were analyzed using frequencies and percentages. The variables include gender, age, cause of accident, severity of injury, injured

body part, location of injury, type of plaintiff, type of claim, type of legal defense, type of golf course, and case outcome.

Gender, age, and cause of accident. Male plaintiffs had a higher injury rate as compared to female plaintiffs (see Table 6). Adults outnumbered minors by about 9.53 to 1. The No. 1 cause of golf-related injuries was golf ball accidents, followed by slip, trip, and fall accidents, golf cart, and lightning accidents (see Table 7).

Table 6

Gender and Age Patterns of Injured Plaintiffs in Golf-related Injuries

Gender	Frequency	Percent	Age	Frequency	Percent
Male	96	65.3	Adult	133	90.5
Female	51	34.7	Minor	14	9.5
Total	147	100.0	Total	147	100.0

Table 7

Leading Causes of Golf-related Injuries

Cause	Frequency	Percent
Golf ball	66	44.9
Slip, trip, and fall	40	27.2
Golf cart	37	25.2
Lightning	4	2.7
Total	147	100.0

Severity of injury and injured body part. A large number of injured plaintiffs (59.2%) suffered minor golf-related injuries (see Table 8). As shown in Table 9, 33% of the plaintiffs suffered head-related injuries on or near golf courses. Upper-body and lower-body injuries accounted for 23% of the cases.

Table 8

Extent of Golf-related Injuries Suffered from the Golf Course Accidents

Severity of injury	Frequency	Percent
Minor	87	59.2
Severe	56	38.1
Death	4	2.7
Total	147	100.0

However, 53 of the cases (36.1%) did not reveal accurate information about areas of the body that the plaintiff injured (see Table 10). Of 147 victims, nine had multiple injuries, one died due to hypothermia, and one suffered from cardiac arrest. Sixty-four of the cases were included in the "other" category (see Table 9). Table 10 presents specific areas of the body in which the plaintiff was injured.

Table 9

The Most Commonly Injured Body Parts

Body part	Frequency	Percent
Head	49	33.3
Lower body	24	16.3
Upper body	10	6.8
Other	64	43.5
Total	147	100.0

Table 10

Specific Body Sites

Body part	Frequency	Percent
Eye	26	17.7
Head	16	10.9
Ankle	9	6.1
Multiple injuries	9	6.1
Leg	6	4.1
Face	4	2.7
Wrist	4	2.7
Back	2	1.4
Foot	2	1.4
Hip	2	1.4

Body part	Frequency	Percent
Mouth	2	1.4
Knee	2	1.4
Chest	1	.7
Thumb	1	.7
Groin	1	.7
Neck	1	.7
Shoulder	1	.7
Rib	1	.7
Hypothermia	1	.7
Toe	1	.7
Cardiac arrest	1	.7
Calf	1	.7
No clear body site	53	36.1
Total	147	100.0

Location of injury. Eighty-two percent of the golf course accidents occurred on the golf course (n = 121). The remaining cases occurred off the golf course (n = 12), around the clubhouse (n = 8), and at the parking area (n = 6), respectively. Table 11 lists specific injury locations.

Table 11

Specific Injury Sites Where Golf Course Accidents Took Place

Location of injury	Frequency	Percent
Golf cart path	19	12.9
Fairway	17	11.6
Near tee box	12	8.2
No clear location	11	7.5
Hill slope	8	5.4
Hole	8	5.4
Property near golf course	7	4.8
Rough area	7	4.8
Parking area	6	4.1
Highway or road near golf course	5	3.4
Bridge	4	2.7
Putting green	4	2.7
Around or under a tree	3	2.0
Clubhouse	3	2.0
Stair	3	2.0
Wet grass	3	2.0
Bench	2	1.4
Exposed tree root or tree stump	2	1.4
Pond	2	1.4

Location of injury	Frequency	Percent
Ramp	2	1.4
Driving range	2	1.4
Private road in golf course	2	1.4
Walkway	2	1.4
Board	1	.7
Ravine	1	.7
Bridge	1	.7
Loose sand and gravel	1	.7
Rocky slope	1	.7
Between green and step	1	.7
Entryway	1	.7
Lagoon	1	.7
Playground	1	.7
Spectator area	1	.7
Gravel path	1	.7
Hedge	1	.7
Weather shelter	1	.7
Total	147	100.0

Type of plaintiff and type of golf course. As seen in Table 12, a majority of the plaintiffs in litigation were golfers. All employee lawsuits against golf courses were brought by caddies. One of the cases did not describe who the plaintiff was. Some 124 (84.4%) of the

injured plaintiffs were invitees; 21 plaintiffs (14.3%) were noninvitees. The status of the plaintiff in the remaining two cases (1.4%) was not clearly defined. Some 113 of the defendants (77%) operated nonmunicipal golf courses, whereas 34 golf courses (23%) were owned by the municipality.

Table 12

Plaintiffs in Golf Injury Lawsuits

Type of plaintiff	Frequency	Percent
Golfer	106	72.1
Spectator	7	4.8
Employee	6	4.1
Nongolfer	27	18.4
Unknown	1	.7
Total	147	100.0

Type of claim. Most plaintiffs (84%) brought a negligence claim against golf courses to recover financially from injuries caused by golf ball, golf cart, lightning, or slip, trip, and fall accidents (see Table 13). Additional types of claims available to the plaintiffs in golf-injury lawsuits included statute, product liability, nuisance, and multiple claims (see Table 13). Statutes that the injured plaintiffs used in golf-injury lawsuits included the Federal Tort Claims Act (n = 2), the state tort claims act (n = 1), the dangerous instrument doctrine (n = 2), and the vehicles rented without drivers statute (n = 1).

Table 13

Plaintiff's Claims Brought against Golf Courses

Type of claim	Frequency	Percent
Negligence	124	84.4
Statute	6	4.1
Product	4	2.7
Nuisance	2	1.4
Multiple claims	11	7.5
Total	147	100.0

Type of defense and case outcome. About half of the golf courses raised four elements not present as a defense to golf injury claims, followed by multiple defenses, primary assumption of risk, immunity, and other (see Table 14). Table 15 and Table 16 specifically indicate other and multiple defenses that golf courses used in golf injury claims. Seventy-seven of the cases ended in favor of the golf course (see Table 17). Another 46 were decided against the golf courses, and the remaining 24 cases were remanded (see Table 17).

Table 14

Legal Defenses Raised by Golf Courses

Type of defense	Frequency	Percent
Four elements not present	66	44.9
Primary assumption of risk	25	17.0
Immunity	11	7.5
Other	11	7.5
Multiple defenses	34	23.1
Total	147	100.0

Table 15

Other Defenses Used by Golf Courses in Litigation

Type of defense	Frequency	Percent
Contributory negligence	1	9.1
Worker compensation legislation	1	9.1
Disclaimer clause	3	27.3
The golf cart's crossing of the highway is a risk inherent in golf	1	9.1
Golf cart on a golf course is not included in the statute	1	9.1
Status of plaintiff	1	9.1
Strict liability cannot be applied	1	9.1
Two-pronged test not established	1	9.1
Joint adventure	1	9.1
Total	11	100.0

Table 16

Multiple Defenses Used by Golf Courses in Litigation

Type of multiple defense	Frequency	Percent
Four elements not present and primary assumption of risk	8	23.5
Four elements not present and comparative negligence	4	11.8
Four elements not present and contributory negligence	2	5.9
Four elements not present and immunity	5	14.7
Four elements not present, primary assumption of risk, contributory negligence, and statute limitation	1	2.9
Immunity and statute limitation	2	5.9
Four elements not present, primary assumption of risk, and contributory negligence	2	5.9
Four elements not present, immunity, and comparative negligence	1	2.9
Four elements not present, statute limitation, and comparative negligence	1	2.9
Four elements not present and worker compensation legislation	1	2.9
Status of plaintiff, four elements not present, contribution, and indemnity	1	2.9
Four elements not present, primary assumption of risk, disclaimer clause, and contributory negligence	1	2.9
Four elements not present and disclaimer clause	1	2.9
Primary assumption of risk, misuse, and disclaimer clause	1	2.9
Four element not presents, statute limitation, and contributory negligence	1	2.9
Four elements not present, primary assumption of risk, and comparative negligence	1	2.9

Type of multiple defense	Frequency	Percent
Four elements not present, comparative negligence, and contributory negligence	1	2.9
Total	34	100.0

Table 17

Rates of the Golf Course's Success or Failure in Litigation

Outcome	Frequency	Percent
Win	77	52.4
Lose	43	29.3
Remand	27	18.4
Total	147	100.0

Results of the Chi-square Test for Independence

A chi-square test for independence was performed to investigate the associations between each variable regarding the accident profiles of injured plaintiffs and the characteristics of golf-injury lawsuits against golf courses. The variables regarding accident profiles of injured plaintiffs include gender, age, cause of accident, severity of injury, the injured body part, and location of injury. The variables regarding the characteristics of golf-injury lawsuits against golf courses include type of plaintiff, type of claim, type of legal defense, and type of golf course.

Associations between variables regarding accident profiles of injured plaintiffs. In terms of associations between age and other variables, there were no significant

associations between gender and age ($\chi^2 = 1.2$, $df = 1$, $N = 147$, $p = .381$), the cause of golf-related injury ($\chi^2 = 2.71$, $df = 3$, $N = 147$, $p = .466$), the injured body part ($\chi^2 = 2.67$, $df = 3$, $N = 147$, $p = .445$), and the location of injury ($\chi^2 = 4.19$, $df = 3$, $N = 147$, $p = .249$) (see Table 18). However, a significant association was found between gender and severity of injury ($\chi^2 = 6.81$, $df = 2$, $N = 147$, $p = .035$) (see Table 18). Females suffered a higher rate of minor injuries, whereas males suffered a higher rate of severe injuries.

Table 18

Chi-square Analyses of Age, Cause, Injured Body Part, Injury Location, Severity of Injury by Gender

Variable	Male	Female	P-value
Age			p = .381
Adult	85 (88.5%)	48 (94.1%)	
Minor	11 (11.5%)	3 (5.9%)	
Cause			p = .466
Golf ball	41 (42.7%)	25 (49.0%)	
Golf cart	28 (29.2%)	9 (17.6%)	
Slip, trip, and fall	24 (25.0%)	16 (31.4%)	
Lightning	3 (3.1%)	1 (2.0%)	
Injured body part			p = .445
Head area	34 (35.4%)	15 (29.4%)	
Upper body	8 (8.3%)	2 (3.9%)	
Lower body	13 (13.5%)	11 (21.6%)	
Other	41 (42.7%)	23 (45.1%)	
Location of injury			p = .249
On the golf course	83 (86.5%)	38 (74.5%)	
Off of the golf course	7 (7.3%)	5 (9.8%)	
Near clubhouse	3 (3.1%)	5 (9.8%)	
Parking lot	3 (3.1%)	3 (5.9%)	
Severity of injury			p = .035
Minor	50 (52.1%)	37 (72.5%)	
Severe	42 (43.8%)	14 (27.5%)	
Death	4 (4.2%)	0 (0.0%)	

Table 19 shows the Pearson chi-square results regarding associations between age and other variables. Age was found to be significantly associated with the cause of golf-related injury ($\chi^2 = 14.3$, $df = 3$, $N = 147$, $p = .005$) and the severity of injury ($\chi^2 = 9.62$, $df = 2$, $N = 147$, $p = .014$). Adults were more likely to be at higher risk of golf cart accidents or slip, trip, and fall accidents. Minors were more likely to suffer injuries caused by errant balls or lightning strikes. Additionally, adults had a higher rate of minor injuries when compared to minors. Minors had a higher rate of severe injuries or death than had adults. However, age was not significantly statistically associated with an injured body part ($\chi^2 = 6.21$, $df = 3$, $N = 147$, $p = .092$) and location of injury ($\chi^2 = 3.33$, $df = 3$, $N = 147$, $p = .336$).

Table 19

Chi-square Analyses of Cause, Injured Body Part, Injury Location, Severity of Injury by Age

Variable	Adult	Minor	P-value
Cause			p = .005
Golf ball	56 (42.1%)	10 (71.4%)	
Golf cart	36 (27.1%)	1 (7.1%)	
Slip, trip, and fall	39 (29.3%)	1 (7.1%)	
Lightning	2 (1.5%)	2 (14.3%)	
Injured body part			p = .092
Head area	41 (30.8%)	8 (57.1%)	
Upper body	10 (7.5%)	0 (0.0%)	
Lower body	24 (18.0%)	0 (0.0%)	
Other	58 (43.6%)	6 (42.9%)	
Location of injury			p = .336
On the golf course	107 (80.5%)	14 (100.0%)	
Off the golf course	12 (9.0%)	0 (0.0%)	
Near clubhouse	8 (6.0%)	0 (0.0%)	
Parking lot	6 (4.5%)	0 (0.0%)	
Severity of Injury			p = .014
Minor	82 (61.7%)	5 (35.7%)	
Severe	49 (36.8%)	7 (50.0%)	
Death	2 (1.5%)	2 (14.3%)	

Regarding associations between the cause of golf course accident and other variables, the cause of golf course accidents showed significant associations with injured body parts (χ^2 = 71.3, *df* = 9, *N* = 147, *p* = .000), location of injury (χ^2 = 23.2, *df* = 9, *N* = 147, *p* = .019), and severity of injury (χ^2 = 15.0, *df* = 6, *N* = 147, *p* = .024) (see Table 20). Plaintiffs injured by golf balls suffered a higher proportion of head-related injuries or other body injuries. Those who were injured by golf carts or by slip, trip, and fall accidents suffered a higher proportion of lower body injuries. As compared to other types of golf course accidents, injured plaintiffs on the golf course encountered a slightly higher rate of golf cart or lightning accidents. Injured plaintiffs off of the golf course had a higher percentage of golf ball accidents. Injured plaintiffs near the clubhouse had a higher rate of slip, trip, and fall accidents. Plaintiffs who were injured by slip, trip, and fall accidents had a higher percentage of minor injuries, whereas plaintiffs injured by lightning strikes had a higher percentage of severe injuries or death.

Table 20

Chi-square Analyses of Injured Body Part, Injury Location, Severity of Injury by Cause

Variable	Golf ball	Golf cart	STP	Lightning	P-value
Injured body part					p = .000
Head area	45 (68.2%)	3 (8.1%)	1 (2.5%)	0 (0.0%)	
Upper body	4 (6.1%)	2 (5.4%)	4 (10.0%)	0 (0.0%)	
Lower body	4 (6.1%)	9 (24.3%)	11 (27.5%)	0 (0.0%)	
Other	13 (19.7%)	23 (62.2%)	24 (60.0%)	4 (100.0%)	
Location of injury					p = .019
On the golf course	51 (77.3%)	35 (94.6%)	31 (77.5%)	4 (100.0%)	
Off of the golf course	11 (16.7%)	1 (2.7%)	0 (0.0%)	0 (0.0%)	
Near clubhouse	2 (3.0%)	0 (0.0%)	6 (15.0%)	0 (0.0%)	
Parking lot	2 (3.0%)	1 (2.7%)	3 (7.5%)	0 (0.0%)	
Severity of injury					p = .024
Minor	38 (57.6%)	20 (54.1%)	29 (72.5%)	0 (0.0%)	
Severe	27 (40.9%)	16 (43.2%)	10 (25.0%)	3 (75.0%)	
Death	1 (1.5%)	1 (2.7%)	1 (2.5%)	1 (25.0%)	

Finally, in relation to associations between variables in the accident profiles of injured plaintiffs, no significant association was found between the injured body part and the location of injury ($\chi^2 = 12.7$, $df = 9$, $N = 147$, $p = .168$) (see Table 21). Similarly, no significant association was found between the location of injury and the severity of injury ($\chi^2 = 6.64$, $df = 6$, $N = 147$, $p = .332$) (see Table 22). However, there was a significant association between the injured body part and the severity of injury ($\chi^2 = 20.3$, $df = 6$, $N = 147$, $p = .004$). (see Table 21). Plaintiffs who had upper body or other body injuries were more likely to suffer minor injuries than plaintiffs who had head or lower body injuries. Plaintiffs who had lower body injuries tended to suffer a higher percentage of severe injuries than plaintiffs who had other body area injuries.

Table 21

Chi Square Analyses of Injury Location and Severity of Injury by Injured Body Part

Variable	Head area	Upper	Lower	Other	P-value
Location of injury					p = .168
On the golf course	42 (85.7%)	6 (60.0%)	23 (95.8%)	50 (78.1%)	
Off the golf course	2 (4.1%)	3 (30.0%)	1 (4.1%)	6 (9.4%)	
Near clubhouse	3 (6.1%)	1 (10.0%)	0 (0.0%)	4 (6.2%)	
Parking lot	2 (4.1%)	0 (0.0%)	0 (0.0%)	4 (6.2%)	
Severity of injury					p = .004
Minor	25 (51.0%)	7 (70.0%)	7 (29.2%)	48(75.0%)	
Severe	22 (44.9%)	3 (30.0%)	17 (70.8%)	14 (21.9%)	
Death	2 (4.1%)	0 (0.0%)	0 (0.0%)	2 (3.1%)	

Table 22

Chi-square Analysis of Severity of Injury by Location of Injury

Variable	On the GC	Off the GC	Clubhouse	Parking lot	P-value
Severity of injury					p = .332
Minor	66 (54.5%)	9 (75.0%)	7 (87.5%)	5 (83.3%)	
Severe	51 (42.1%)	3 (25.0%)	1 (12.5%)	1 (16.7%)	
Death	4 (3.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	

Associations between variables regarding golf-injury lawsuits. In terms of the type of plaintiff, significant associations were not shown with the type of claim ($\chi^2 = 14.2$, $df = 8$, $N = 147$, $p = .153$), type of defense ($\chi^2 = 14.3$, $df = 8$, $N = 147$, $p = .67$), and type of golf course ($\chi^2 = 4.07$, $df = 2$, $N = 147$, $p = .112$) (see Table 23).

Table 23

Chi-square Analyses of Type of Claim, Type of Defense, and Type of Golf course by Type of Plaintiff

Variable	Invitee	Noninvitee	Unknown	P-value
Type of claim				p = .153
Negligence	105 (84.7%)	17 (81.0%)	2 (100.0%)	
Statute	6 (4.8%)	0 (0.0%)	0 (0.0%)	
Product	4 (3.2%)	0 (0.0%)	0 (0.0%)	
Nuisance	0 (0.0%)	2 (9.5%)	0 (0.0%)	
Multiple claim	9 (7.3%)	2 (9.5%)	0 (0.0%)	
Type of defense				p = .067
Four elements not present	55 (44.4%)	11 (52.4%)	0 (0.0%)	
Primary assumption of risk	20 (16.1%)	5 (23.8%)	0 (0.0%)	
Immunity	9 (7.3%)	1 (4.8%)	1 (50.0%)	
Other	10 (8.1%)	0 (0.0%)	1 (50.0%)	
Multiple defense	30 (24.2%)	4 (19.0%)	0 (0.0%)	
Type of golf course				p = .112
Nonmunicipal	99 (79.8%)	13 (61.9%)	1 (50.0%)	
Municipal	25 (20.2%)	8 (38.1%)	1 (50.0%)	

Similarly, the type of claim was not significantly associated with type of golf course ($\chi^2 = 4.96$, $df = 4$, $N = 147$, $p = .248$) (see Table 24). However, a significant association was found between the type of claim and the type of defense ($\chi^2 = 36.2$, $df = 16$, $N = 147$, $p = .003$) (see Table 24). When a nuisance claim was brought, golf courses used a higher percentage of four elements not present as a defense. A higher percentage of primary assumption of risk was used as a defense of negligence claims. A higher percentage of defense in statute or multiple claims was immunity. As compared to other types of claims, a higher rate of "other" defense was used in statute or product claims. A higher percentage of multiple defense was used in negligence or product claims.

Table 24

Chi-square Analyses of Type of Defense, and Type of Golf Course by Type of Claim

Variable	Negligence	Statute	Product	Nuisance	Multiple	P-value
Type of defense						p = .003
Four elements	56 (45.2%)	2 (33.3%)	1 (25.0%)	2 (100.0%)	5 (45.5%)	
Primary	24 (19.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (9.1%)	
Immunity	8 (6.5%)	1 (16.7%)	0 (0.0%)	0 (0.0%)	2 (18.2%)	
Other	5 (4.0%)	3 (50.0%)	2 (50.0%)	0 (0.0%)	1 (9.1%)	
Multiple	31 (25.0%)	0 (0.0%)	1 (25.0%)	0 (0.0%)	2 (18.2%)	
Type of golf course						p = .248
Nonmunicipal	99 (79.8%)	3 (50.0%)	3 (75.0%)	1 (50.0%)	7 (63.6%)	
Municipal	25 (20.2%)	3 (50.0%)	1 (25.0%)	1 (50.0%)	4 (36.4%)	

Finally, regarding associations between variables in the characteristics of golf-injury lawsuits against golf courses, the type of golf course was found to be significantly associated with the type of defense ($\chi^2 = 31.66$, $df = 4$, $N = 147$, $p = .000$) (see Table 25). Nonmunicipal golf courses used a higher percentage of four elements not present as a defense to golf injury claims, whereas immunity was used as a defense by a higher percentage of municipal golf courses.

Table 25

Chi-square Analyses of Type of Defense by Type of Golf Course

Variable	Nonmunicipal	Municipal	P-value
Type of defense			p = .000
Four elements not present	56 (49.6%)	10 (29.4%)	
Primary assumption of risk	21 (18.6%)	4 (11.8%)	
Immunity	1 (0.9%)	10 (29.4%)	
Other	9 (8.0%)	2 (5.9%)	
Multiple	26 (23.0%)	8 (23.5%)	

Logistic Regression Results

A binary logistic regression was performed to determine the most influential factors that can affect a golf course's success in litigation. Because 27 of the 147 cases were remanded, the logistic regression was run with the remaining 120 cases. The independent variables in the logistic regression model included gender, age, cause of golf course accident, severity of injury, injured body part, location of injury, type of plaintiff, type of claim, type of legal defense, type of golf course, foreseeability, and known risk to the plaintiff. The dichotomous dependent variable was case outcome.

Multicollinearity occurred when the 12 independent variables were entered into the model. That is, the standard errors (SEs) of a few independent variables were very high (see Table 26). To treat multicollinearity, as Chan (2004) recommended, the type of plaintiff, the variable with largest SE, at first was eliminated from the logistic regression model. This process continued until the size of the SEs reached between .0001 and 5.0. Finally, eight independent variables -- gender, age, injured body part, location of injury, type of claim, type of defense, and known risk to plaintiff again – were entered into the model.

Table 26

Independent Variables with Large Standard Errors in the Logistic Regression Model

Categories	Levels of category	B	S.E.	Wald	Sig.
Type of plaintiff	Noninvitee	17.739	10795.734	.000	.999
	Unknown	20.377	40192.970	.000	1.000
Cause	Golf cart accident	-.592	1.598	.137	.711
	Slip, trip, and fall accident	-.973	1.543	.397	.528
	Lightning strikes	16.787	24653.476	.000	.999
Severity	Severe	-.450	1.287	.122	.727
	Death	19.884	22575.745	.000	.999
Foreseeability	Yes	-40.088	8001.805	.000	.996

They significantly predicted whether a golf course won in litigation, χ^2 (18, N = 120) = 51.11, $p < .001$. Overall, the combination of eight independent variables explained between 34.7% (Cox and Snell R square) and 47.6% (Nagelkerke R squared) of the variance in whether a golf course won in litigation. As shown in Table 27, the most influential factor in determining a golf course's success in litigation was the known risk to plaintiff. Golf courses were 52 times more likely to win when an injured plaintiff knew any risks existing on or near the golf courses than when an injured plaintiff did not know of any risks on or near the golf course. Another important factor in determining the golf course's success in litigation was multiple claim. Golf courses were .09 times more likely to lose when an injured plaintiff brought a multiple claim against the golf course than when an injured plaintiff brought a negligence claim against the golf course.

Table 27

Estimates of Importance of Each of the Independent Variables

Categories	Levels of category	B	Sig.	Odds ratio
Type of claim	Statute	-.172	.887	.842
	Product	-.798	.517	.450
	Nuisance	-3.198	.120	.041
	Multiple claim	-2.369	.025	.094
Types of defense	Assumption of risk	-1.820	.082	.162
	Immunity	-.878	.374	.416
	Other	.472	.649	1.603
	Multiple defense	-1.199	.056	.301
Gender	Female	.297	.606	1.346
Age	Minor	-.024	.978	.976
Type of golf course	Municipal	.553	.402	1.738
Injured body part	Head	-.795	.188	.452
	Upper body	.911	.537	2.487
	Lower body	1.464	.088	4.322
Location of injury	Off of the golf course	-.532	.599	.587
	Clubhouse	-1.437	.242	.238
	Parking area	-1.030	.448	.357
Known risk to plaintiff	Yes	3.952	.000	52.034

Chapter 5

Summary, Discussion, Implications, and Recommendations

This chapter addresses an overall summary of this study and discussion of conclusions drawn from the results of the data analysis. Additionally, implications of the study for golf course management and recommendations for additional research are presented.

Summary

People perceive golf as a sports activity with a low risk of injury. Considering that golf equipment is used during the game, and the sport is an outdoor activity, however, golf participants may be exposed to severe golf-related injuries or even death due to golf ball, golf club, golf cart, lightning, or slip, trip, and fall accidents. In 2009 alone, more than 41,000 people in the United States went to hospital emergency departments for treatment of a golf-related injury. Given that these injuries can lead to golf-injury lawsuits, golf course managers need to employ risk management strategies to prevent golf-related injuries on or near their golf courses.

Analyzing legal cases regarding golf-related injuries can be a good approach to understanding injury trends in U.S. golf participants because the cases usually contain facts about how the plaintiffs were injured on or near a golf course. However, studies of court decision regarding golf-related injuries focused on legal aspects related to golf course accidents. Besides, most of these studies took a traditional legal analysis approach. Subjective case selection technique and the absence of a methodical coding scheme in this method can make it difficult to yield objective and repeatable results in analyzing legal cases. Furthermore, because legal scholars using this method usually do not use quantitative

methods to analyze legal cases, they can have trouble understanding overall patterns of the legal cases associated with a particular topic. In this context, this study used quantitative content analysis to investigate legal cases regarding golf-related injuries between 1930 and 2013.

The purpose of this study was threefold: (a) to determine injury patterns in injured plaintiffs on or near golf courses, (b) to determine the characteristics of golf-injury lawsuits against golf courses, and (c) to determine the most influential factors that can affect a golf course's success in litigation. For these purposes, the study was based on methodological steps for quantitative content analysis that Neuendorf (2002) presented and Clement and Otto (2007) used in their research: case selection, coding scheme, validity and reliability, coding, and statistical analysis.

Some 147 federal court and state court decisions between 1930 and 2013 were drawn from the LexisNexis legal search engine. The variables for the study were obtained from a review of relevant literature and from the content of the selected cases. The following variables were used to examine injury patterns in injured plaintiffs on or near golf courses: age, gender, the leading causes of golf-related injuries, the severity of golf-related injuries, the most frequently injured body parts, and the accident sites. The following variables were used to investigate the characteristics of golf-injury lawsuits against golf courses: types of plaintiffs, types of claims, types of legal defenses, types of golf courses, and case outcome. The variables regarding the accident profiles of injured plaintiffs and the characteristics of golf-injury lawsuits against golf courses were used to examine the most influential factors in determining whether the golf course won or lost in litigation. Additionally, the variables, foreseeability, and known risks to plaintiff, were used to achieve the third purpose. Because

all of the variables are categorical variables, they were measured on a nominal or ordinal scale. To provide the evidence of content validity, a panel of experts was formed. The Cohen's kappa reliability test was conducted to measure inter-rater agreement for the variables between two coders. The legal cases were individually coded by two coders based on the same coding scheme. The coded data were analyzed with descriptive statistics for categorical variables, chi-square test for independence, and binary logistic regression.

Male plaintiffs (65.3%) were more likely to suffer golf-related injuries than female plaintiffs (34.7%). Adults outnumbered minors in golf-related injuries (90.5% v. 9.5%). Injuries on or near golf courses were primarily due to golf balls (44.9%). Slip, trip, and fall accidents and golf cart accidents accounted for 27.2% and 25.2% of golf-related injuries, respectively. A large portion of golf-related injuries (59.2%) was minor. Although 53 of the cases (36.1%) did not include accurate information about areas of the body where a plaintiff was injured, the head and lower body areas accounted for approximately 50% of the most-often injured body parts. Among the most commonly injured body parts were the eye (17.7%), head (10.9%), ankle (6.1), multiple injuries (6.1%), leg (4.1%), and face (2.7%). A large majority of golf-related injuries (82%) occurred on the golf course. Locations associated with the most accidents included a golf cart path (12.9%), fairway (11.6%), near a tee box (8.2%), and hill slope (5.4%). In terms of associations between variables regarding the accident profiles of injured plaintiffs, the cause of golf course accidents showed significant associations with age, injured body part, location of injury, and severity of injury. Additionally, there were significant associations between the severity of injury and gender, age, and injured body part.

A large majority of plaintiffs (84.4%) in golf-injury litigation were considered invitees. About 85% of the invitees were golfers. A substantial number of lawsuits (77%) were brought against nonmunicipal golf courses. Negligence (84.4%) was the dominant claim that the plaintiffs used against golf courses to recover financially from golf-related injuries. Defense strategies most likely to be used by golf courses were four elements not present (44.9%), multiple defenses (23.1%), and primary assumption of risk (17.0%). The golf course's win rate in golf-injury litigation was 52.4%. Cases where the primary facts of the case had not been settled were 18.4%. In relation to the associations between variables regarding the characteristics of golf-injury lawsuits against golf courses, the type of claim was found to be significantly related to the type of defense. The type of golf course showed a significant association with the type of defense. The most influential factors in predicting whether a golf course won or lost in golf-injury litigation were known risks to the plaintiff and multiple claim.

Discussion

In gender and age patterns of the plaintiffs in golf-related injuries, males suffered a higher rate of golf-related injuries than females. This result is consistent with the findings of previous research (Fountas, Kapsalaki, Machinis, Boev, Troup, & Robinson, 2006; Fradkin, Cameron, & Gabbe, 2006; Jayasundera, Franzco, & Joondeph, 2003; Waston, Mehan, Smith, & McKenzie, 2008). More adults than minors were involved in golf-related injuries. These results may be attributable to gender and age differences in U.S. golf participants. In 2003, the National Golf Foundation (NGF) reported that the vast majority of golf participants were males (75%) and that golfer participants over the age of 18 made up about 83% of the golf population (as cited in Shea, 2008). Judging from the fact that a large portion of the golfer

population is male adults, they seem to have a higher rate of golf-related injuries than female minors.

The top cause of golf-related injuries was golf ball accidents, followed by slip, trip, and fall accidents, golf cart, and lightning accidents. Although previous studies revealed that golf-related injuries would result from golf club accidents (DeVoto, 1993; Fountas et al., 2006; Fradkin et al., 2006; Jayasundera et al., 2003; Kircher, 2003; Tonner, Sawyer, & Hypes, 1999), this study found no legal case regarding golf club-related injury lawsuits against golf courses. This seems to show that as Tonner et al. (1999) noted in their golf litigation study, most lawsuits associated with a golf club would include minors and their parents and would be brought against the parents of the minors who caused the injuries to other minors, rather than the golf course.

Similarly, legal cases (n = 4) regarding lightning-related injury lawsuits against golf courses were extremely rare (2.7%) despite the fact that on average, about 4% of lightning fatalities between 2004 and 2011 occurred on golf courses (see Table 1). This result may reflect that because lightning accidents would ordinarily be considered an act of God, golfers injured by lightning strikes on golf courses would believe that golf courses may avoid liability for lightning strikes even if they bring a golf-injury lawsuit against a golf course (Tonner et al., 1999).

In terms of associations between variables regarding the accident profiles of injured plaintiffs, adults were more likely than minors to be exposed to golf cart or slip, trip, and fall accidents. Minors were more likely to be injured by golf balls or lightning strikes than adults. These results are similar to what Fradkin et al. (2006) presented. They concluded that age was significantly associated with the cause of golf-related injuries. However, no significant

association was found between age and the injured body parts, which is inconsistent with what Fradkin et al. proposed.

One of main characteristics in golf injury litigation was that a large majority of injured plaintiffs (84.4%) filed a lawsuit against golf courses claiming negligence when they were injured on or near golf courses due to golf course accidents. This pattern is supported by a court-decision study conducted by Tonner et al. (1999), which analyzed golf-related litigation between 1973 and 1998 and concluded that nearly 53% of the reviewed cases were associated with personal injury claims resulting from negligence.

Another characteristic is that 84.4% of the injured plaintiffs were invitees. Considering that invitees receive the greatest protection under law, it was expected that whether an injured plaintiff was an invitee or not would be an important factor in predicting whether the golf course won or lost in litigation. However, the status of the plaintiff did not affect the outcome of the case. This result may reflect that most courts would accept that it is impossible for golf course owners to act as a perfect insurer to make their golf course safe in such condition that no golf course accidents occur on or near their golf courses.

It has been well known that most golf-injury lawsuits are settled based on the assumption-of- risk doctrine (Sawyer, 2005). Also, because municipal golf courses are regarded as government entities, there has been a high possibility that they would be immune from liability for ordinary negligence when compared to other types of golf courses (Sawyer, 2005). However, this study shows that primary assumption of risk and governmental immunity did not influence the golf course's success in litigation. This tendency may occur because the influence of primary assumption of risk has been greatly reduced in that most

states have adopted the doctrine of comparative negligence (Kircher, 2001) and because many jurisdictions have eliminated the doctrine of governmental immunity (Sawyer, 2005).

Implications for Golf Course Management

The results of this study may help golf course managers not only prevent golf-related injuries on or near golf courses but also may help decrease the number of lawsuits against a golf course. First, golf course managers need to note the associations between the cause of golf-related injuries and injured body parts and location of injury. Plaintiffs injured by golf balls suffered head injuries more frequently. Plaintiffs injured by golf carts or slip, trip, and fall accidents suffered lower-body injuries more frequently. On the golf course, plaintiffs were injured by a slightly higher percentage of golf cart or lightning accidents. Plaintiffs near the golf course were exposed to higher risk of errant ball accidents. Plaintiffs injured near the clubhouse suffered slip, trip, and fall accidents more frequently. This information may be helpful to develop more effective risk management plans for the golf course accidents.

Second, golf course managers can use the results of the study to develop the proper treatment strategies for golf course accidents occurring on or near golf courses based on a risk treatment matrix (see Table 3). Errant ball accidents can be categorized as a risk with high frequency but with a low or moderate degree of injury. Golf cart and slip, trip, or fall accidents can be categorized as a risk with medium frequency and yet with a low or moderate degree of injury. Lightning strikes can be categorized as a risk with low frequency and yet with a critical or catastrophic degree of injury. Therefore, golf course mangers can take retention, reduction, and/or transfer strategies to treat the golf course accidents.

Finally, the study found an important factor that can affect a golf course's success in golf-injury lawsuits. Many courts would find that there was no liability on the part of the golf

course when the injury was caused by dangers that were obvious, reasonably apparent, or as well known to the invitees as to the golf course owner. Therefore, to avoid the liability for injury, golf course managers are required to discover dangerous conditions on their golf courses by carrying out regular inspections. But, if the dangerous conditions are hard to eliminate, a warning should be given to golf participants about the conditions. Such action may help golf courses win golf-injury lawsuits.

Recommendations for Additional Research

The following recommendations for future research are based on the results of this study and a review of related literature:

- Additional research may consider determining whether current golf courses have similar patterns in terms of the characteristics of golf-related injuries or the characteristics of golf injury lawsuits against golf courses using survey or qualitative research.
- Quantitative content analysis can be used to analyze legal cases regarding other sports-related injuries for the purpose of finding certain factors that can predict whether the plaintiff or the defendant will win or lose in litigation.
- Multicollinearity can occur when a sample size in a logistic regression is small. A good way to prevent multicollinearity is to increase sample size. Thus, it is recommended that researchers who plan to use quantitative content analysis to find certain factors that can predict whether the defendant will win or lose in golf-injury lawsuits include different types of defendants, such as other golfers, manufacturers, and golf course designers, rather than limiting a defendant to a golf course.

Appendices

Appendix A

Codebook

Gender: Indicate the gender of the injured plaintiff.

1. Male
2. Female

Age: Indicate the injured plaintiff's legal age in years.

1. Adult
2. Minor

The leading causes of golf course accidents: Indicate major causes that lead the plaintiff to an injury or death, including golf ball, golf cart, lightning strike, and slip, trip, and fall accidents.

1. Golf ball accident
2. Golf cart accident
3. Slip, trip, and fall accident
4. Lightning accident

The extent of golf-related injuries: Indicate the seriousness of golf-related injuries suffered from the leading causes of golf course accidents.

1. Minor
2. Severe
3. Death

The most frequently injured body parts: Indicate areas of the body that the plaintiff is most likely to injure due to golf course accidents.

1. Head
2. Upper-body
3. Lower-body
4. Other

The accident sites: Indicate high accident locations on or near the golf course.

1. On the golf course
2. Off of the golf course
3. Around the clubhouse
4. In parking area

Types of plaintiffs: Indicate potential plaintiffs in golf injury claims.

1. Invitee
2. Noninvitee

Types of claims: Indicate lawsuits brought against a golf course.

1. Negligence
2. Statute

3. Product
4. Nuisance
5. Multiple

Legal defenses: Indicate defenses to golf-injury lawsuits that golf courses can use.

1. Four elements not present
2. Assumption of risk
3. Immunity
4. Other
5. Multiple

Types of golf courses: Indicate types of golf courses where a potential plaintiff can bring a golf injury lawsuit.

1. Nonmunicipal
2. Municipal

Foreseeability: Indicate whether the golf course anticipated or should have anticipated the injury to the plaintiff prior to the accident.

1. Yes
2. No

Known dangers to plaintiffs: Indicate whether there were dangers that are obvious, reasonably apparent, or well known to a plaintiff.

1. Yes
2. No

Case outcome: Indicate the outcome of the cases.

1. Win
2. Lose
3. Remand

Appendix B

Institutional Review Board Approval

UNM | Office of the Institutional Review Board

December 2, 2013

Dear Kyongmin Lee:

On 12-02-13, the IRB reviewed the following submission:

Type of Review:	Initial
Title of Study:	**Legal Cases Concerning Golf-Related Injuries: A Quantitative Content Analysis**
Investigator:	Kyongmin Lee
Study ID:	13-865
Funding:	N/A
Grant ID:	N/A
IND, IDE, or HDE:	N/A
Documents Reviewed:	Study Protocol submitted 11-27-13

The IRB determined that the proposed activity is exempt from federal regulations. IRB review and approval by this organization is not required.

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are being considered and there are questions about whether IRB review is needed, please contact the HRPO for guidance.

Sincerely,

J. Scott Tonigan, PhD
IRB Chair

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