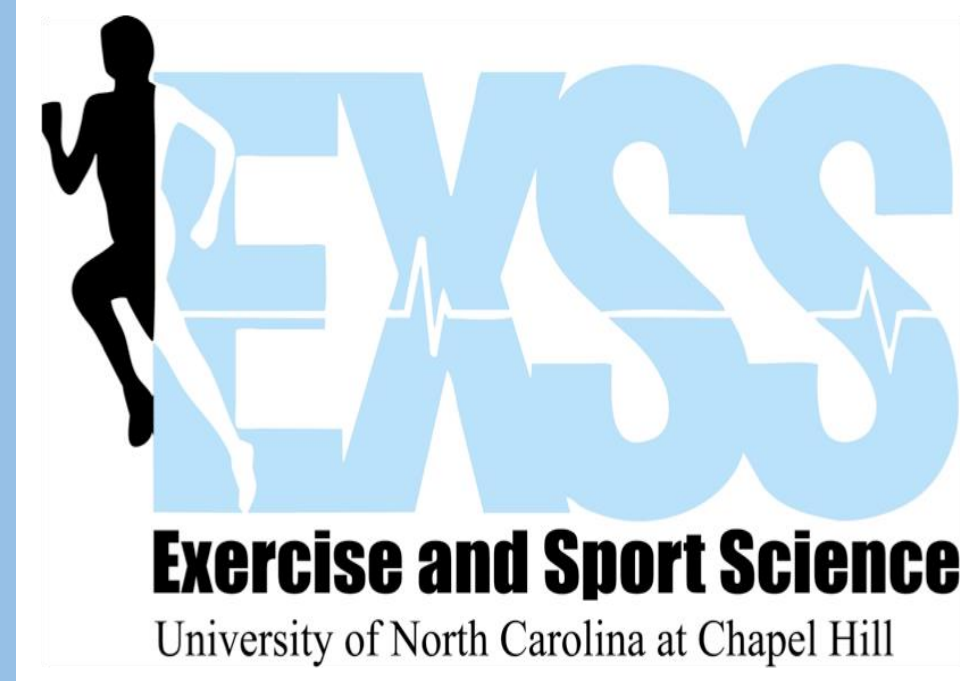


Participation in Cheerleading and Its Effect on Injury Rates



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INTRODUCTION

Cheerleading can be divided into three different types of cheer. Those three being sideline spirit, halftime or pregame entertainment and competition held separately from games which is known as all-star cheer¹. In the past twenty years, cheerleading has gained popularity in both young children and college aged students with an estimation of over a million participants per year.² With the increase in participation, cheer has also increased in complexity. The incorporation of complex skills “including tumbling, pyramids of 15 ft or higher, and partner stunts with athletes lifting, tossing, and catching each other” is likely one of the reasons that the incidence of injuries has been rising³. Several studies demonstrated that cheerleading injury rates are increasing as the complexity of the sport has. In 1980 The US Consumer Product Safety Commission reported that there were 4,954 hospital emergency department visits for cheerleading injuries. It was reported that this number had increased by 400% bringing the number of visits to 26,786 by 2007.³

PURPOSE

The current problem within cheer is that there are not accurate numbers of participants. This can lead to inaccurate injury rates for cheerleading. Although cheerleading is a sport that requires high levels of athleticism, the National Collegiate Athletic Association (NCAA) does not sponsor cheer as a sport and only 29 state high school athletic associations acknowledge cheer as a sport.³ Due to cheerleading not being a sponsored sport it leads to lack of resources such as qualified athletic trainers and coaches, up to date practice facilities, and other resources that sponsored sports have⁴. This also means that injuries and participation counts are not always documented and reported. If an individual is injured while participating in the sport and the number of participants documented is less than the actual number of participants it may result in a greater rate of injury suggesting that cheer is more dangerous than it really is. Therefore, accurate numbers are necessary for accurate information and statistics about the injury rates.

Research Questions:

1. What are the data sources available for high school aged cheer participation?
2. What are the impacts of different participation estimates on catastrophic sport injury rates in cheer?

METHODOLOGY

- Participation numbers from 2014-2020 for male and female high school-aged participants came from two sources.
- One source is the National Federation of State High School Associations (NFHS). The NFHS sends out surveys to all of the 51 state high school associations. Once the surveys have been sent to the state associations, it is up to each state on how they distribute these surveys. NFHS data was used for male and female high school cheer participants.
- Sports Business Research Network (SBRNET) collects participation statistics from a nationwide study conducted during the calendar years by Sports Marketing Surveys USA. SBRNET data was used for high school cheer participants between the ages of 13 to 17 years of age for both male and female. SBRNET divides participation into two separate categories: core participation (50 or more times per year) and casual participation (<49 times per year).
- National Center for Catastrophic Sport Injury Research (NCCSIR) data was used to identify the number of catastrophic cheer injuries and illnesses that occurred for both females and males between the years of 2014-2020. The number of catastrophic injuries and illnesses were used to calculate the rate of injury per 1,000,000 cheer participants per year.

RESULTS

Figure 1: This table includes both direct and indirect injuries for all female participants since there were no male injuries reported. No injuries were reported to NCCSIR for the years of 2018 and 2019. NFHS had the highest injury rate in 2020 (21.34 per 100,000 participants). The highest injury rate for SBRNet was 3.35 per 100,000 participants. The difference in these injury rates for the year of 2020 is 17.99.

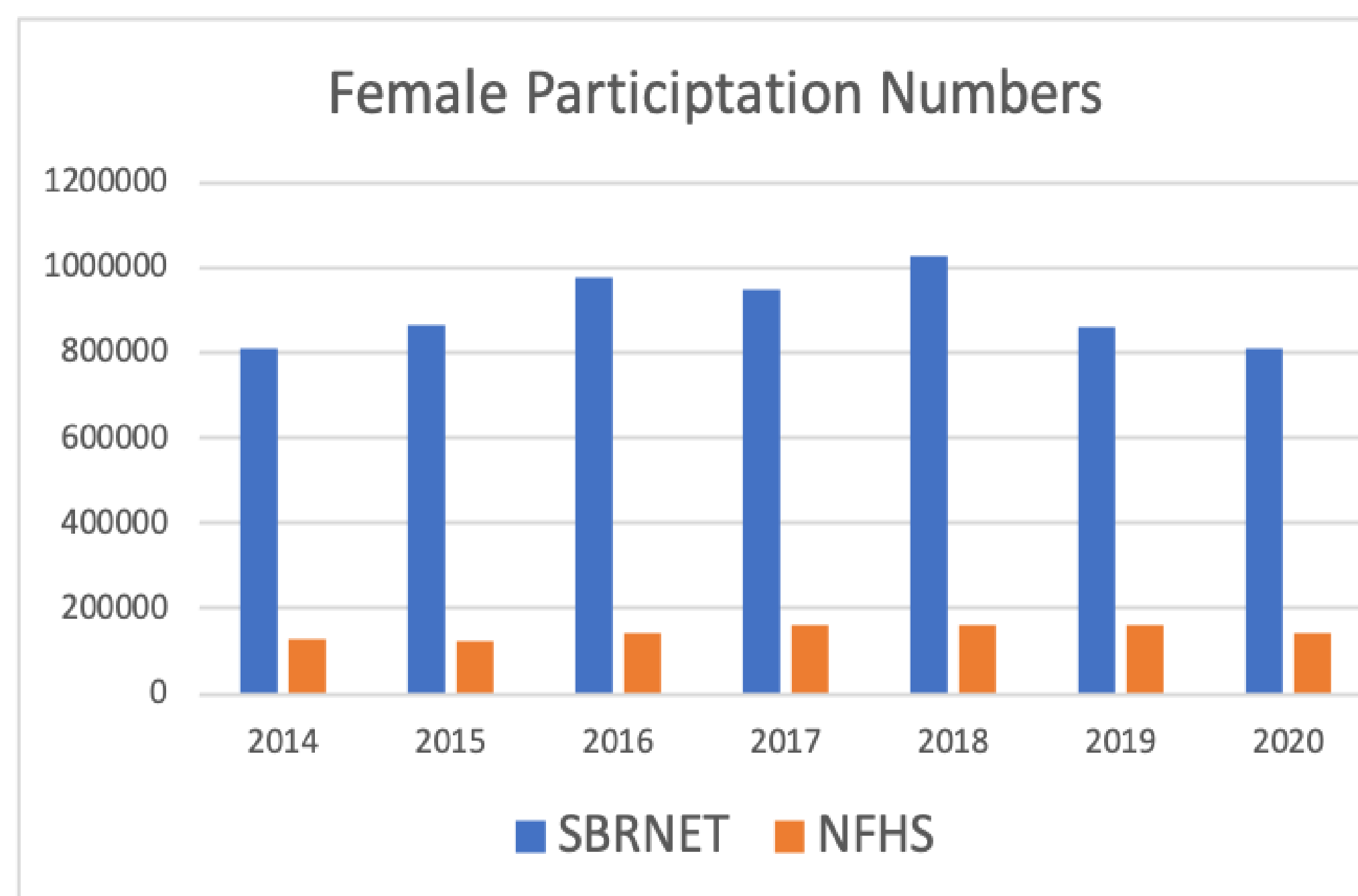
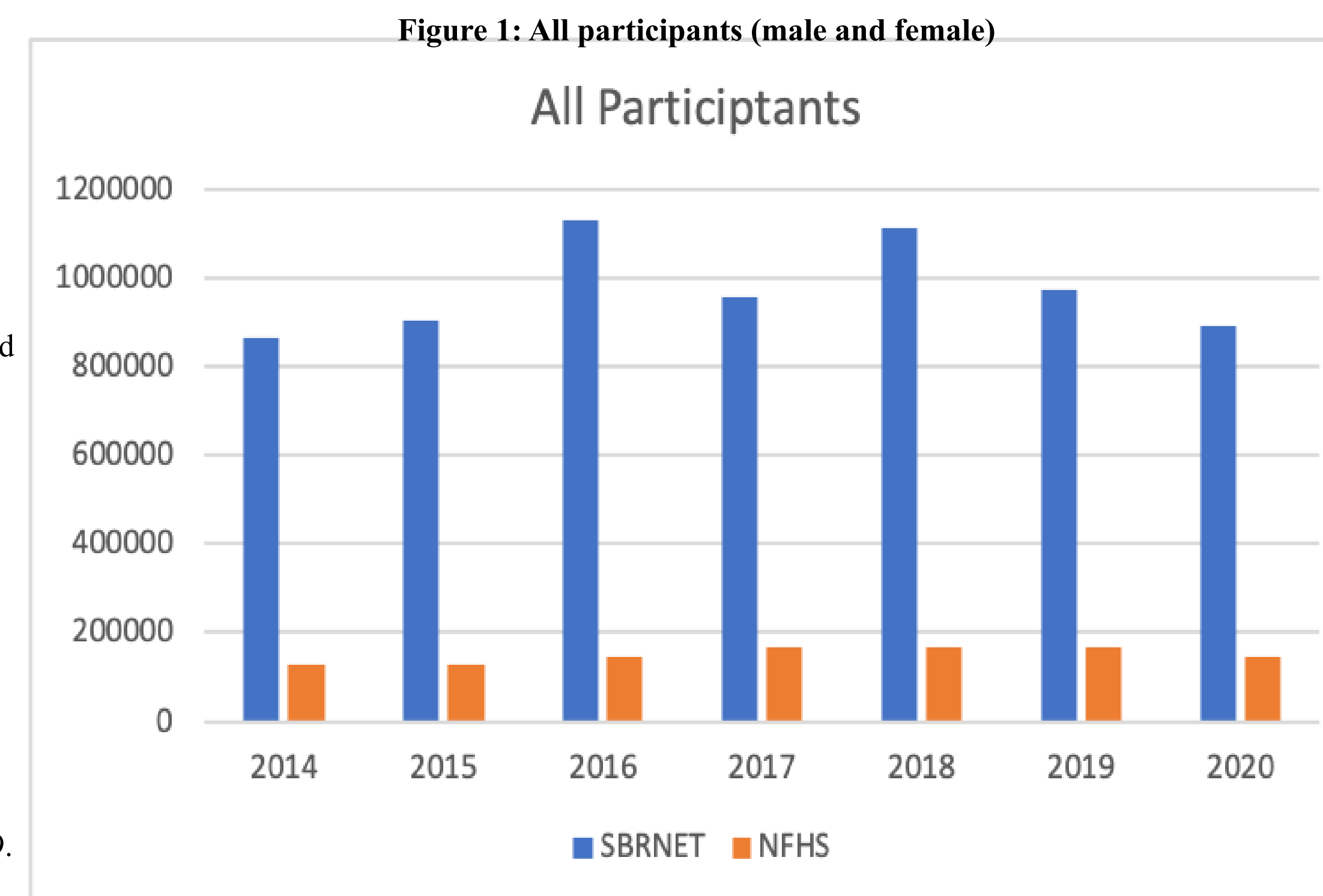


Figure 2: Female participation numbers from both SBRNet and NFHS from the years of 2014-2020. SBRNet had the highest number of female participants in 2018 (1,024,760) and the lowest female participation number in 2014 (806,930). NFHS had the highest number of female participants in 2017 (162,669) and the lowest number of female participants in 2015 (125,531). In 2020, the difference in the number of female participants was 669,788.

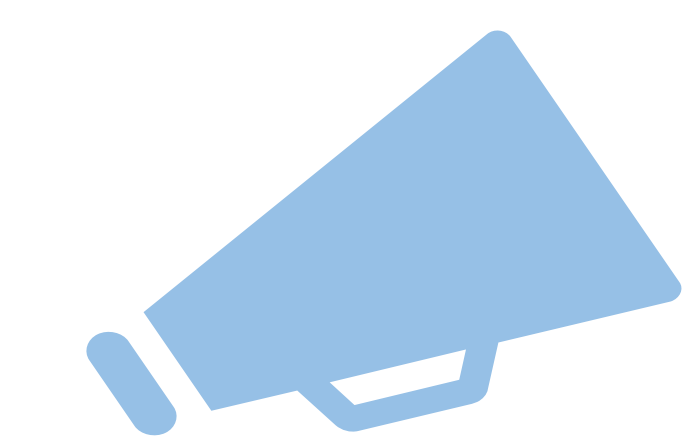


Table 1: Male Participation Numbers from both SBRNet and NFHS for the years of 2014-2020. Between these years, no male participants sustained any injuries that were reported to NCCSIR. The greatest difference in participants noted here is 106,522 in the year of 2019.

Year	SBRNET	NFHS
2014	59,710	2,687
2015	63,210	3,322
2016	98,000	2,505
2017	68,640	3,851
2018	90,970	3,938
2019	110,460	3,938
2020	76,340	3,657

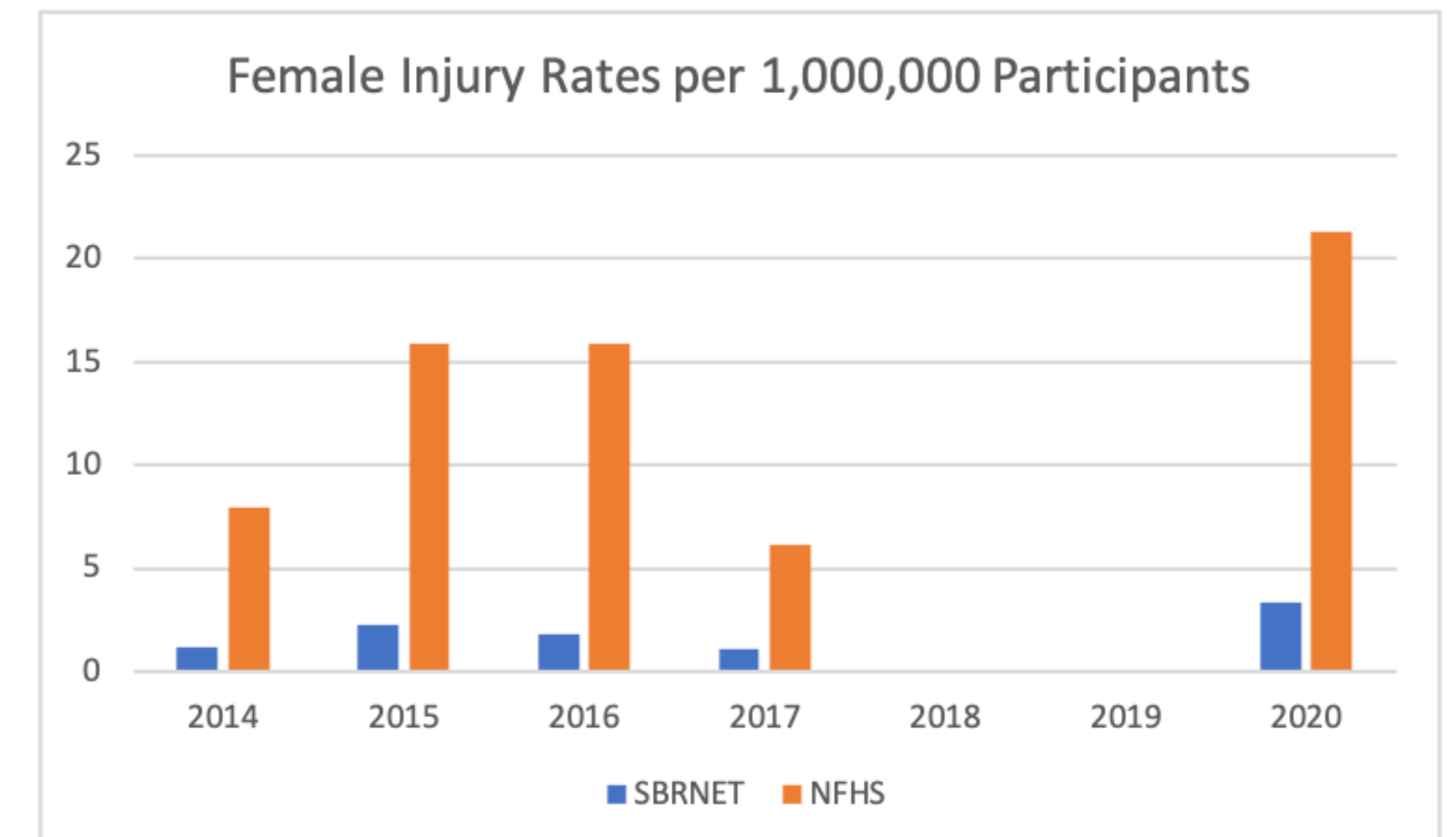


Figure 3: This table includes both direct and indirect injuries for all female participants since there were no male injuries reported. No injuries were reported to NCCSIR for the years of 2018 and 2019. NFHS had the highest injury rate in 2020 (21.34 per 1,000,000 participants). The highest injury rate for SBRNet was 3.35 per 1,000,000 participants. The difference in these injury rates for the year of 2020 is 17.99.

DISCUSSION

- Participation numbers varied between the two data sources SBRNet and NFHS. High school state associations only collect participation from sports they sponsor and many states do not sponsor cheer. SBRNet participation numbers produced lower injury rates compared to injury rates with NFHS participation numbers.
- In the year of 2020, participation numbers declined most likely due to the COVID-19 pandemic.
- One limitation to this study was NFHS participation numbers are acquired through surveys. Hence if every high school does not fill out the survey, the numbers are underestimated. NCCSIR has historically relied on NFHS survey data to determine the number of participants in cheer. If the participation numbers are inaccurate, the injury rates are also inaccurate.
- In order to make this data accurate, cheer participation surveys should be required to be completed before participating in any events whether it is sideline spirit, halftime and pregame entertainment, or all-star cheer.

CLINICAL RELEVANCE

- Accurate data of participants and injuries will provide a better understanding of what the rate of injury in cheerleading actually is.

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