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Is the Motorsport Industry Gender Biased?

BSc Motorsport Management

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Appendix 1.0: Declaration

I, Daniel Stuart Tate, declare that I am the sole owner of this dissertation; that all of references cited have been consulted; that I have conducted all work of which this is a record, and that the finished work lies within the prescribed word limits.

This has not previously been accepted as part of any other degree submission.

Date 28/05/2020

Appendix 2.0: Form of Consent

I, Daniel Stuart Tate, hereby consent that my dissertation, submitted in candidature for the BSC (Hons) Motorsport Management Degree, if successful, may be made available for inter-library loan or photocopying (subject to the law of copyright) and that the title and abstract may be available to outside organisations.

Date: 28/05/2020

Appendix 3.0- Corona Virus Pandemic

Coronavirus After the UK implemented a 24-hour curfew in March 2020, UWTSD took steps to support the research student and research during the curfew and University building closures. Formal supervision meetings continued as much as possible and arranged via suitable meeting software and documents shared electronically. Some research was at greater risk to delays, for example projects requiring physical presence to undertake interviews, fieldwork or data collection. Supervisors and research students urgently reviewed their research plans. UWTSD understands that some students' projects and dissertations were planned to require in-person research and data collection that is not possible in this period of remote learning. Digital research activities that advance the studies, were prioritised. If it was no longer possible to continue with the existing plan then consideration to changes to the project plan should be considered to offset, wherever possible, undue future delays to the project/dissertation submission. All fieldwork conducted by students occurred remotely using electronic means wherever possible.

Date: 28/05/2020

Abstract-

This dissertation looks to investigate and reasonably conclude if the motorsport industry is gender biased in these current times. The study looks to uncover the truth surrounding the generalised perceptions of limited female participation in mostly male dominated sports such as football and rugby.

The investigation took into account the primary sourced data that was obtained through an online survey, along with the secondary sourced data which was obtained through a review of previous literature on the topic. The primary hypothesis that was determined following observation of these two means of data collection showed the H_{0a} Hypothesis to be accepted.

H_{0a} - The motorsport industry is gender biased.

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Chapter 1- Introduction to the dissertation

Motorsport is one of a few sports where both males and females can compete at the same time and at the same level, so why are there no females in formula one?

Since the inaugural season of Formula One in 1950, there have only been five female drivers who have competed in the top tier of motorsport. The last female driver who competed in a Formula One race was Leila Lombardi in the 1976 championship, over 40 years ago. Since 1976, there have been various female drivers who have been heavily involved in testing and marketing campaigns for Formula 1 teams but have never managed to compete in the pinnacle main race event. October 2018 saw the launch of the controversial W series, a series that would see 18 female drivers from around the globe compete over 6 European events. The championship organisers believed that something needed to be done to tackle the gender divide within the motorsport industry. The theory behind the W series is that it would be a fundamental tool that would help to fast-track female drivers towards the pinnacle of motorsport that is Formula One as well as promoting the image of females as competitors within the motorsport industry.

One of the main contributors to the lack of female drivers in Formula One is the licence that is required. To compete in Formula One an FIA super licence must be obtained. The licence is not just 'handed out' to anybody who wants to compete in Formula One, as must be obtained through both results and consistent finishes in specific formula championships. Luckily for female drivers who aspire to race in Formula One, The W series (an all-female racing championship) is one of the selected championships that contributes to the cumulation of super licence points. However, winning the W series only accumulates 15 of the 40 points needed to obtain the super licence, as compared to the Formula 2 mixed-gender series that can provide 40 of the super licence points in a single season. Another contributor to the lack of female involvement within the motorsport industry may be that there just isn't enough emerging female talent. This could be down to various reasons such as, limited progression for females who wish to compete in karting at a young age, limited sponsorship opportunities compared to their male counterparts or even the lack of female role models that inspire young females to get involved in motorsport activities.

1.1 Aims of the study

The aim of the dissertation is to determine if the motorsport industry is gender biased. It aims to look at female's interest in competing in the industry and also considers if the gender of a driver plays a significant role in the ability and opportunity in which to race. The research also looks to identify if the motorsport industry is attempting to become a more gender inclusive sport or if it is just following other mainstream sports in trying to maintain a gender balanced image. After identifying these aims in the study, the surrounding primary hypothesis can be formed and tested. The given hypotheses for this study are;

H₀- The motorsport industry is not gender biased.

H_{0a}- The motorsport industry is gender biased.

1.2 Methodology

To have a better understanding of the public's perceptions on gender inequality a qualitative based survey was constructed and distributed online to a wide audience. The purpose of the survey was to determine the general public perceptions on gender inequality, not only in the sporting industry but in society as a whole. Prior to handing out the survey to the general public, a pilot survey was constructed to ensure that the questions that were asked followed the thread of research in the main study.

1.3 Layout of the dissertation

Chapter 2-Review of Literature

Chapter two will look to identify existing literature surrounding the topic of gender inequality in sport. The review looks at three particular themes. The first theme is the Dare to Be Different and FIA Women in Motorsport Initiatives, that explores how to support and enhance female involvement and participation in the motorsport industry. The second theme looks to address female willingness to compete in the competitive motorsport environment. This theme takes into account females who wish to become engineers as well as those who wish to race. The third theme looks to address existing literature on Formula One's abolishment of traditional motorsport grid girls.

Chapter 3- Methodology

Chapter three will discuss how Saunders research onion can be used to formulate the appropriate methodology through various stages of research design, paying particular attention to the approach taken before gathering data.

Chapter 4- Analysis of results

The primary data that was gathered during the survey is presented and analysed using statistical testing procedures which in-turn will determine if the formulated secondary hypotheses of the question can be accepted or rejected. The analysis of data taken from this survey will also help show if there are key determining factors, that have an impact on the outcome of the questions answered.

Chapter 2: Review of Literature

2.1 Introduction to the review of literature

This literature review will take a thematic analysis approach to determine key points of discussion regarding sexism and inequality within the motorsport industry. The author has chosen to take a thematic approach as it allows for systematic qualitative research to be carried out and further scrutinised to ensure its validity and appropriateness for the question being explored throughout this paper. As stated in Braun, V. and Clarke, V.'s paper **'Using thematic analysis in psychology. Qualitative Research in Psychology'** *"Through its theoretical freedom, thematic analysis provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex account of data."* (Braun & Clarke, 2006) Throughout this literature review there are three key themes of study, these being; Inequality within the workplace (generic approach to women in the workplace) and what the Dare To Be Different and FIA Women in Motorsport Initiatives are, and if they are purposeful in creating a gender inclusive sport?, females' willingness to compete in a competitive environment and the grid girl debate which looks to the future of a more equal gender in sport approach.

2.2.1 Theme One: Inequality within the workplace

Initial thoughts on the subject matter determine that there is not only a problem within the motorsport industry but in society as a whole. The glass ceiling theory, that was introduced by Marilyn Loden in 1978, provides a starting point for feminist organisations to change society's approach to start allowing females to excel within their respected companies/ organisations. The glass ceiling theory also addresses females' concerns with sexual stereotyping and misogynistic views of fellow colleagues. Marilyn Loden states in a BBC News Article titled, **'100 Women: 'why I invented the glass ceiling phrase'** *"During the 1970s and into the 1980s, there were no laws in place in the US to protect women from workplace harassment or assault. There was also no awareness in organisations about the severity of the problem and zero interest in hearing about or resolving it."* (BBC News, 2017) This was the first-time women's inequality within the workplace was discussed and could be regarded as the start of the 'revolution' to bridge the gap between male and female discrimination.

In 1992 Christine L. Williams published an article titled **'The Glass Escalator'** which focussed on the hidden advantages that males had in a predominantly female based industry (Nursing, teaching, social work) to reach higher roles than their female counterparts. Williams re-visits her original book titled **'Gender and Society'** discussing the change over the 20 years since the term 'glass ceiling' was established. Williams quite openly states that there are:

"two major limitations of the concept: (1) it fails to adequately address intersectionality; in particular, it fails to theorize race, sexuality, and class; and (2) it was based on the assumptions of traditional work organizations, which are undergoing rapid transformation in our neoliberal era. The glass escalator assumes stable employment, career ladders, and widespread support for public institutions (e.g.,

*schools and libraries)—which no longer characterize the job market today.” (Williams , 2013) Although Williams has somewhat failed to address key determining factors in her original statement by not including ethnic race, sexuality and social class, she has stated that the ideology was based on traditional work organisations employing heterosexual white men. Williams further explains that there has been noticeable change over 20 years due to different perceptions of females in work, including neoliberal perceptions on work. However, Williams states “*The experiences of men in the so-called women’s professions offered a powerful critique of this theory of tokenism. I showed that numerical rarity does not have negative consequences for men in these fields. Because men and qualities associated with masculinity are more highly valued than qualities associated with women and femininity, men in nursing, teaching, librarianship, and social work tend to benefit from their token status.*” (Williams , 2013) Tokenism is described as being “*the practice of placing or promoting individuals from disadvantaged groups (e.g. women, ethnic minorities, disabled people) into high-profile roles in the organization in order to give the impression that the organization practises equal opportunity. It represents a cynical move by managers to disguise or ignore the structures and procedures that disadvantage women, ethnic minorities, and disabled people.*” (Heery & Noon, 2008)*

This area of discussion shows that there is not only a sexual hierarchical problem within the Motorsport Industry, but in general modern society as a whole. This discussion shows that there is a prominent trend that limits the job role progression if you’re not a white heterosexual man. This observation resulted in the glass ceiling theory being developed by feminists in the late 70s. This theory can link back to the lack of females reaching high level jobs within the Motorsport Industry.

What are the ‘Dare to Be Different’ and ‘FIA Women in Motorsport’ Initiatives and are they purposeful to improve female involvement in motorsport?

The ‘dare to be different’ initiative was established in January 2016 by former racing driver Susie Wolff and Rob Jones of the Motor Sports Association (now Motorsport UK). The initiative hopes to inspire young female enthusiasts to explore the Motorsport Industry as a viable source of work or interest. Wolff states in an interview with Sky Sports “*Our main aim with Dare To Be Different is to Drive Female Talent. This is an ambitious and long-term project that will build an online community of women from all over the world, it will connect them through a shared passion and empower them to become the next wave of role models, whilst also providing access to some of the most successful female names in the sport.*” (Esler, 2016) The Initiative invites young females (8-11 year olds) to take part in STEM activities (science, technology, engineering and maths) within a motorsport context and shows and celebrates that there are female role models within the industry.

The FIA Women in Motorsport Commission was set up on the 11th December 2009 after approval by the president of the FIA Jean Todt. The commission states that it was created in order to; “demonstrate that women are recognised by the highest body responsible for motor sport, show that motorsport is open to women in all of its aspects, whether as competitors, officials, team managers, engineers, mechanics, etc, promote the place of women in motorsport through media, international

events, partners and stakeholders, develop social and educational programmes in order to encourage greater participation of women in motor sport, make young women (drivers, officials, professionals, customers) aware of road safety issues." (FIA Women In Motorsport, 2018)

Having gender specific commissions, such as the FIA Women in Motorsport, shows that the sport may not be as gender inclusive as some believe. Motorsport is one of the only sports that includes equal mixed gender competition and having single sex commissions established through motorsport's officiating body shows that these female drivers may feel somewhat under-represented by a standardised FIA. The Women in Sport Commission played a key role in the development of the 'dare to be different' organisation. Their affiliated long-term objectives allowed for the creation of a strategic partnership with both the commission and the 'dare to be different' organisation.

2.2.2 Theme Two: Females Willingness to compete in the competitive motorsport environment

To understand the term 'willingness to compete', a short review of the history of females within the sport can be carried out. Completing accurate historical research on the sport can provide a starting point to see where segregation of gender first started to appear. Since the conception of the automobile, women were outcast from competing at the same level as men. In the introduction of the book titled **'Women in Motorsport from 1945'**, the authors Susan TP-Jamieson and Pete J Tutthill state *"Even as far back as 1938 women were appearing on 'Page 3' in the 30th of September issue of light car! The first article in 'topics of the day' posed the question: should women race?"* (TP-Jamieson & Tutthill, 2003) The book further goes on to explain that women found difficulties in joining motorsport clubs and organisations with the majority *"rejecting them"* outright. (TP-Jamieson & Tutthill, 2003) Due to lack of females wanting to compete in motorsport events there was a lack of recognition for talented female drivers. It was not the case that female drivers in this era were 'not-talented'. The fact of the matter was that there were more male participants than female, a point that is still relevant to this day and commented on by the chairman of Motorsport UK (the organisation in charge of distributing UK race licences) David Richards, who stated that *"currently only five per cent of Motorsport UK competition licence holders are female"* (Motorsport UK, 2020).

Straying away from the driver's aspect of competition, the inclusion of female engineers within the industry has seen a substantial rise. An article published by the Guardian, entitled **'Women in motorsport: 'We don't fit the old engineering stereotypes'** comments on this inclusion. One of the interviewees, Bernadette Collins, a mechanical design engineer for McLaren Racing at the time of publication, stated that she "grew up with a fascination for Formula One engineering and never considered the gender of the people behind the technology. It remains a non-issue for her. "We've got some of the best engineers in the business"... "Whether it's a male or a female doing the job really doesn't matter. "The number of women in engineering and motorsport is increasing all the time, and I wouldn't want any young female engineers to be put off by a so-called gender division." (Burns, 2012)

Willingness to compete as a female is one of the key issues that the motorsport industry needs to address. However, the industry is promoting young females to get involved within (addressed in theme four and five) through different avenues such as STEM activities for prospective young female talent. Females who already work within the motorsport industry (in engineering) say that they didn't want to be judged based on their gender but on their performance overall.

As of the 2018/2019 Formula One season there were no females acting as first or reserve drivers, however there are females progressing through the ranks with the likes of Jamie Chadwick (Winner of W series championship) and Tatiana Calderon (FIA F2 championship driver) being employed by Formula One Teams. Williams F1 team made the following statement regarding the role of Jamie Chadwick within the team: *"As a Development Driver, Jamie will be fully immersed into the team both trackside and in the factory at Grove. Alongside a busy simulator programme, she will also attend three European races, starting at the British Grand Prix, and support the team in a number of media and marketing activities."* (Williams Formula One Team, 2019) Claire Williams (Deputy team Principle) commented on Jamie's appointment stating *"Promoting women in motorsport is extremely important and having a female role model as part of our Driver Academy will hopefully inspire young girls to take up racing at a young age. We hope to show that motorsport is inclusive and exciting, be that as a driver or on the engineering side. Jamie is a great talent and I look forward to working with her."* (Williams Formula One Team, 2019)

The 2019 Formula One championship saw only 20 drivers compete with no female participation. Susie Wolff (Ex F1 test driver and founder of Dare to be different) commented on this lack of female participation in Formula One in a New York times article in 2012, saying *"Even if you are talented, there are still only 24 seats on the grid and only a handful of those - if any - become vacant each year. There is only a small percentage of aspiring girl racers - compared to the hundreds of thousands of boys - who attempt a racing career, so the chances of them getting through to F1 is always going to be remote."* (Spurgeon, 2016) Jolyon Palmer (Former Formula One Renault team driver) also commented on the inclusion problem, stating that *"it was a question of numbers, going all the way back to when drivers take up motor racing as children. If you look in karting, at age 6 or age 10, there is probably one girl for every 10 boys. And when there are only 22 places in Formula One and everybody is fighting so hard to get there, if you have 10 more guys to girls at a lower level then it filters out probably to a higher level as well."* (Spurgeon, 2016)

Female drivers are becoming more included in supporting activities within Formula One this can be seen in during practice, testing and media exercises. The prominent re-occurring trait is that the minimal percentage of female driver involvement from a young age prevents the likelihood of female progression towards the top tiers of motorsport. This trait determines that if there was a larger female involvement at amateur and non-professional levels, there could be more females progressing towards prime racing series.

2.2.3 Theme Three: The grid girl argument. Is it still acceptable in today's society?

On January 31st, 2018, Formula One/ Liberty media made the following statement regarding the denouncement of 'grid girls' and the introduction of 'grid kids', "*While the practice of employing grid girls has been a staple of Formula 1 Grands Prix for decades, we feel this custom does not resonate with our brand values and clearly is at odds with modern day societal norms. We don't believe the practice is appropriate or relevant to Formula 1 and its fans, old and new, across the world.*" (Formula One Group, 2018) Typical duties of a Formula one 'grid girl' include holding driver name boards and lining the corridors towards the podium before race winning ceremonies. However, Jean Todt, the president of The Fédération Internationale de l'Automobile (FIA) commented on the matter saying that the ban was "stupid" and described the debate as being "*Bull*****" (Dawson, 2018) However, Mr Todt welcomed Formula Ones 'grid kids' scheme by stating "*We are therefore delighted to bring that dream a little closer by giving the future champions of our sport the opportunity to stand alongside their heroes on the grid in the build-up to the race start.*" (Benson, 2018)

This 'ban' of 'grid girls' was tested at the 2018 Monaco Grand Prix, with the Automobile club de Monaco employing models to participate in pre-race rituals. Both male and female models represented the long-term race sponsor Tag Heuer alongside the newly introduced Formula Ones 'grid kids'. **Daily Mirror** stated that the models would "*take to the grid in the moments before the race, capturing pictures of the drivers, which will be posted to social media, and also relaying messages from the sport's fans.*" (Gilpin, 2018) Lewis Hamilton (who at the time of publication was 4 times Formula One World champion) stated "*Monaco is a very elegant grand prix and when we pull up to the grid and there's beautiful women on the grid, that's the Monaco Grand Prix and that's a lovely thing. I definitely don't think we should ever be supporting or pushing these women in general to feel uncomfortable. And if they are, then we shouldn't do it.*" (Gilpin, 2018)

Japanese singer and model, Rose Ogawa was considered the first 'Grid Girl' with some describing her as the "Race Queen." (Saner, 2018) Ogawa was employed by an oil firm in the late 60s to market the company's products before motorsport events. Over the next two decades female promotional models were advised to wear more scantily clad clothing to entice the predominantly male audience at the time. "*A tight fitting lycra playsuit teamed with knee high boots became the unofficial uniform of the grid girls as the glamour stakes increased.*" (Brennan, 2018) Stuart Pringle (Managing Director of Silverstone) commented on the subject stating "*Lycra can stay in the 1970s and 80s for me, I don't want any of that tarty nonsense.*" (Brennan, 2018)

Eddie Jordan, who owned and ran the Jordan Grand Prix team, pioneered the use of grid girls for marketing in the late 1990s and early 2000s. In a 5 live sports documentary he explains "*The idea was it should be fun. Motor racing is a very serious business very commercial and it needs to have a very respectable return on the investment. But at the same time, it also needed to show flair, excitement all of*

the other razzmatazz that goes with racing. It was certainly instrumental in us getting more coverage. We had all the major models at the time, they were so keen to get into the yellow swimsuits. Katie Price, she was the catalyst." (Brennan, 2018)

Formula One's strategy in removing female hostesses from the grid follows that of the world endurance series championship and the professional darts corporation. However, sports such as the Ultimate fight Club (UFC) and most professional boxing series still use scantily dressed girls to show round boards, a tradition that dates back to the 1960s. Eddie Hearn, who is a professional boxing promotor states "we are often asked if we are going to follow suit and get rid of the ring girls. And the answer is: no, we are not. The reason for that is two-fold. Firstly, darts is shown on TV a lot and the truth is the walk-on girls aren't really doing anything. Whereas the ring card girls are actually serving a purpose. And secondly, the ring card girls have been a part of boxing history for many, many years. As far as I am aware, darts will still have dancers on stage performing, but the walk-on girls were not really necessary. From a boxing point of view, we want to keep the traditions of the sport going and, in my opinion, it has nothing to do with sexism or feminism." (Hearn, 2018)

This section shows that different sports take different approaches to sexual stereotyping. One side (motorsport, darts) takes a generic modern society approach in banning the use of female only hostesses and implementing an alternative... in this case of motorsport grid children as a replacement. The other side of the societal approach however sticks to their sporting history, with sports such as boxing and mixed martial arts still using female hostesses as marketing tools.

2.3 Conclusion of the literature review

In conclusion, the sources cited in this review of literature discover issues regarding gender discrimination and objectification of female participants competing and working in the motorsport industry. The industry is starting to recognise that there is a problem with female involvement at all levels of the sport, hence forming initiatives such as 'dare to be different'. However, Bernadette Collins would argue that some females use the gender divide to excel within the Motorsport Industry, which then links back to glass escalator theory, a theory which sees the hidden advantages of those who don't fit the normal industry stereotype. This review has also looked at the grid girl argument paying particular attention to females being objectified based on their looks and what they wear. Although there is vast amount of qualitative research surrounding generic gender inequality within the workplace, there is noticeable lack of motorsport industry specific research available. Not having this industry specific secondary data available, provides the framework in which to conduct further primary research on the intended topic.

Chapter 3- Methodology

3.1 Introduction to the methodology chapter

The methodology chapter follows on from the initial review of literature. The literature review looks to use a thematical approach to both assess and review secondary based resources surrounding the topic of female involvement in the motorsport industry. The secondary data that was obtained and presented in the literature review highlighted that there was a distinct lack of female involvement within the industry. The methodology chapter looks to identify the philosophical approach undertaken whilst conducting primary research. The methodology chapter also looks to utilise Saunders research onion as a means of illustrating the development of the research work. Saunders et al., states that *"The research philosophy you adopt contains important assumptions about the way in which you view the world. These assumptions will underpin your research strategy and the methods you choose as part of that strategy."* (Saunders, et al., 2010)

3.2 Method used to conduct the research

Understanding the wider philosophy behind research helps the researcher to form and present a more conclusive and realistic argument. Below shows figure 3.1- Saunders research onion.

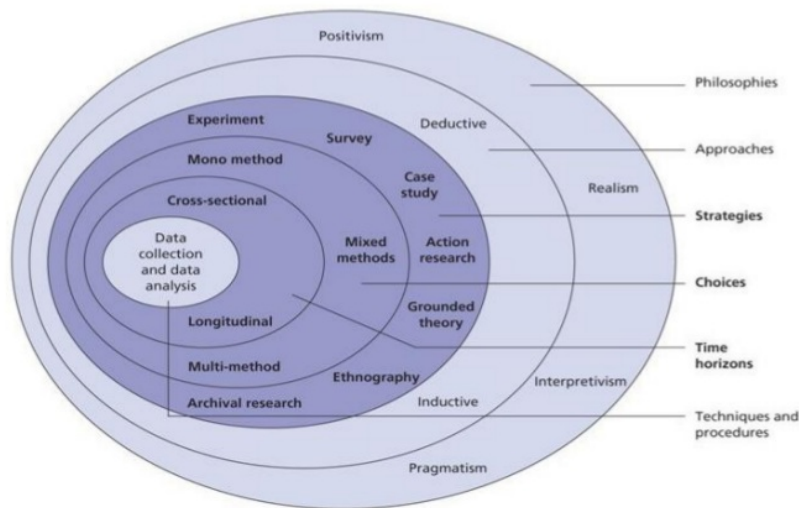


Figure 3.1 Saunders Research Onion (All Assignment Help , 2017)

Saunders research onion is a tool that was developed by Mark Saunders and was first presented in the 6th edition of his book entitled 'Research Methods for Business Students' in 2007. Saunders research onion provides researchers with a better understanding of each stage during the methodology process and also looks to explain the six layers during the methodology process. The

outermost layer and the first to be 'peeled away' is the philosophy behind the research. The second layer looks to identify the research approach that was used. The third layer looks to identify the choice of methodological approach. The fourth layer looks to explain the type of research strategies that can be used to collate information. The penultimate layer is the time horizons layer which could also be described as the time frame in which the research is/was conducted. The final layer is the techniques and procedures used during the research process.

3.3 What are the philosophical approaches and which approach was used during the research?

3.3.1 Philosophy of approach

According to Saunders research onion there are four main types of philosophy that can be used when conducting research, these being Pragmatism, Positivism, Realism and Interpretivism.

- **Pragmatism (Pragmatist) research philosophy-**

Saunders et al., explains that pragmatists "*recognise that there are many different ways of interpreting the world and undertaking research, that no single point of view can ever give the entire picture and that there may be multiple realities*" (Saunders , et al., 2012) A pragmatist approach to research suggests that a singular approach is not always possible. It doesn't mean that pragmatists look to implement mixed methods all of the time, but look to use the correct or multiple methods, which will in-turn form a more rounded, credible and reliable data collection.

- **Positivism (Positivist) research philosophy-**

Dudovskiy suggests that "*Positivism adheres to the view that only "factual" knowledge gained through observation, including measurement, is trustworthy.*" (Dudovskiy, 2018) He further suggests that positivism specific studies follows the role of the researcher and looks to limit the data collection and interpretation of the data in an objective way.

- **Realism (Realist) research philosophy -**

Dudovskiy states that realism "*is based on the assumption of a scientific approach to the development of knowledge.*" (Dudovskiy, 2018) Dudovskiy further suggests that there are two strains of realism, these being Direct realism and Critical realism. Direct realism only looks to use real world information and can be explained perfectly by the phrase "*what you see is what you get*". Critical realism on the other hand identifies that the real world is not always fact and can sometimes be somewhat deceptive.

○ Interpretivism (interpretivist) research philosophy -

Interpretivism looks to integrate and identify human interest during the research stages of the study. Dudovskiy explains that the *"development of interpretivist philosophy is based on the critique of positivism in social sciences. Accordingly, this philosophy emphasizes qualitative analysis over quantitative analysis."* (Dudovskiy, 2018)

The project undertaken follows the post-positivist research philosophy. Unlike the positivist philosophy, post-positivism recognizes that all observations can have a certain element of error and inaccuracy because it is based on human experiences rather than facts. Unlike the positivist viewpoint, which explains that the goal of science is to uncover the truth and the truth cannot be changed, the post-positivist viewpoint believes that the reality of facts can change and be revised based on previous experiences. The reason why the post-positivist research philosophy was chosen is that this study looks to obtain qualitative data that will develop a clearer understanding of general perceptions of the gender equality issue in the motorsport industry.

3.3.2 What was being tested?

After deciding the appropriate philosophical approach that was needed to formulate the research, the next step was to actually conduct the research. After establishing that the research takes a post-positivist approach, the most appropriate means of gathering data would be in the form of a survey. The survey featured three demographic questions and 13 further questions. Baht defines surveys *"as a research method used for collecting data from a pre-defined group of respondents to gain information and insights on various topics of interest."* He further states that *"Surveys have a variety of purposes and can be carried out in many ways depending on the methodology chosen and the objectives to be achieved."* (Bhat, 2020)

3.3.3 How was the test formed?

Pilot survey- Before the survey was released for the general public to complete, a pilot survey was constructed and handed out via email in a Microsoft Word format. The pilot survey was sent to five friends and family members. Alongside the pilot survey, there were 5 supporting questions that would help to identify any errors or issues with the survey. The questions asked in the pilot survey were as follows;

- How long did it take you to complete this questionnaire?
- Did you see a constant trend during the questionnaire? If so, what was this trend?
- Did you like the simplicity of the questionnaire or would you have wanted to elaborate further with your answer?
- Do you think that the structure and layout of the questionnaire was suitable for all ages?
- Was there anything that you believe should be changed in order to improve the questionnaire

The response from the pilot survey determined that the questions were easy to answer and that the survey matched the hypothesis that the research is based upon. The pilot survey also raised the issue that some of the respondents may not know how to answer the question, because of this a 'I'm unsure' answer selection was introduced in the main survey. The pilot survey also concluded that the mean time for answering the multiple-choice questions was 1.67 minutes. Calculating the estimated time to complete the survey was crucial as most respondents would lose interest if the survey was too long. The short time for completion and ease of answering the questions were two of the key elements that enabled a high survey response.

3.3.4 Who can answer the survey and how was it distributed?

The design of the survey allowed for all ages and genders to answer all of the questions with relative ease through simple polar questions (Yes/No). The distribution of the survey was online. This form of distribution was used as it was the easiest way to reach a large population with relative ease. The survey was distributed using an online software called Google Docs. This software enables researchers to simply create, gather and analyse information. Like any research tools and methods, online based surveys have their benefits and limitations.

- **Benefits of online surveys as a means of data collection**

1. **Accuracy-** Online surveys are relatively reliable as respondents are only clicking on an answer rather than putting x's or ticking boxes on a paper format. Another benefit of utilising online surveys over the traditional paper-based style of survey, is that the answers can be changed easily without having to strike or rub out the wrong answer. Not having total clarity of the selected answer can in some circumstances cause confusion when analysing the responses.
2. **Analysis in real time-** Analysis of the results can be conducted in real time. Google Docs has a feature that allows the researcher to view responses in the form of a pie chart that provides a visual representation of how the questions are being answered. It also shows forming trends and a primary example of this in can be seen figure 3.2 below.

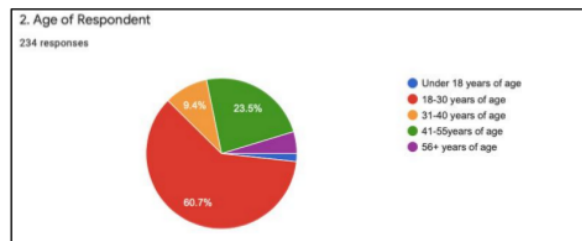


Figure 3.2- Example of Google Docs Pie chart primary data collected.

3. **Transfer of Data-** Another benefit of using Google Docs is that after the data is collected the answers can be quickly expressed in an excel format as seen in figure 3.3 below. This is a convenient tool that can help to transfer data during the analysis stage. Using computer generated spreadsheets also reduces the risk of miss typing wrong responses. Having responses in the form of a spreadsheet can help to identify errors whilst collecting the data. For example in figure 3.3 the researcher can see that the 11th respondent didn't answer question 7 (H,11) (for the purpose of this example the error can be seen highlighted red box).

Timestamp	1. Gender of Respondent	2. Age of Respondent	3. Annual Income of Resp	4. Do you watch sport/ing	5. Do you compete in any	6. Do Men get promoted +	7. Do you believe that gen	8. Do you believe that Fac	9. Do you believe that gen	10. Do you believe that gen	11. In Motorsport do you
04/03/2020 18:44:18	Male	50+ years of age	£75,000+	Yes	No	Yes	No	Yes	Yes	Yes	Yes
04/03/2020 20:18:50	Male	18-30 years of age	Under £20,000	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
04/03/2020 20:20:08	Female	50+ years of age	£25,000-£34,999	Yes	No	Yes	Yes	Yes	Yes	Yes	No
04/03/2020 20:20:45	Female	18-30 years of age	Under £20,000	No	No	No	No	Yes	Yes	Yes	Yes
04/03/2020 20:20:54	Female	18-30 years of age	Under £20,000	No	No	Yes	Yes	Yes	Yes	No	Yes
04/03/2020 20:21:08	Female	18-30 years of age	Under £20,000	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
04/03/2020 20:21:23	Female	18-30 years of age	Under £20,000	No	No	Yes	Yes	Yes	No	No	Yes
04/03/2020 20:21:24	Female	18-30 years of age	Under £20,000	No	No	Yes	Yes	No	Yes	Yes	Yes
04/03/2020 20:21:36	Female	18-30 years of age	Under £20,000	No	No	Yes	Yes	Yes	No	No	Yes
04/03/2020 20:23:02	Male	18-30 years of age	Under £20,000	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
04/03/2020 20:23:55	Female	18-30 years of age	Under £20,000	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
04/03/2020 20:24:10	Prefer not to say	18-30 years of age	Under £20,000	Yes	Yes	No	No	Yes	Yes	No	No
04/03/2020 20:25:01	Male	50+ years of age	£25,000-£34,999	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
04/03/2020 20:27:27	Male	18-30 years of age	£25,000-£34,999	Yes	No	No	Yes	Yes	Yes	Yes	No
04/03/2020 20:29:08	Female	18-30 years of age	Under £20,000	No	No	No	No	Yes	Yes	No	Yes
04/03/2020 20:32:45	Female	18-30 years of age	Under £20,000	No	No	Yes	Yes	Yes	Yes	No	No
04/03/2020 20:35:07	Male	18-30 years of age	Under £20,000	Yes	Yes	No	Yes	Yes	Yes	No	No
04/03/2020 20:40:56	Male	18-30 years of age	Under £20,000	Yes	Yes	No	Yes	Yes	Yes	Yes	No

Figure 3.3- Primary example of results in the form of excel spreadsheet.

4. **Large Distribution** - Online surveys are easy to share. For example, in this study a hyperlink to the survey was shared on various social media platforms and this resulted in a high number of responses being completed by a larger population.

○ **Limitations of online surveys as a means of data collection**

- Multiple surveys may be completed by the same person** - The survey was distributed using a simple hyperlink and didn't feature a sign up or verification for the respondent. This therefore meant the survey could be answered multiple times by the same person. If this is the case, then the data that was obtained from the survey may be incorrect.
- There is no way to see if someone is being truthful (survey fraud)** – whilst handing out paper-based surveys may take longer to complete, a quick analysis of the demographic questions can determine whether the respondent is being truthful or not. On the on-line survey, some respondents may just pick the first answer that they read. This could result in a false reflection of the respondent's true views, thus greatly affecting the overall results.
- Internet access is required-** To complete an online survey the respondent must have internet connection which may mean that the survey cannot be completed by the elderly who may not internet access or those in remote areas where internet access may be limited.

3.4 What questions were used in the survey?

3.4.1 Demographic questions

Question one to three of the survey focused on demographic based questions. The survey started off by asking what the gender of the respondent is. The gender of the respondent was a key factor that needed to be considered as the survey itself was based on sexual inequality within industry. The second demographic question that was asked was the age of the respondent. This question takes into account that some of the respondents may have more work life experience than others. As the survey takes a post-positive approach it therefore has to take into account that previous experiences may alter the way every respondent approach and answers the questions. The third and final demographic question asked what the income of the respondent is. This question was asked as there is normally a direct correlation between earnings, age and life experience.

This survey could help the researcher to analyse how income, gender and age can provide an insight into the research topic. For example, a 60-year old male, who earns over £70,000 per year and has been working for 35 years may have different views or opinions on gender equality in their industry compared to a 25-year old female, who earns under £20,000 and has only been working for 5 years.

3.4.2 Survey questions

The fourth and fifth question helps the researcher to determine whether the respondents general understanding of the sporting industry is adequate to answer some of the questions asked in the survey. The fourth question asked if the respondent watched sport and the fifth question asked if the respondent participated in sport. These questions help the researcher to determine if there is direct correlation between those who watch sport and those who undertake sporting activities.

The sixth question asked if men get promoted easier in the workplace than females. This question was asked as it provides the researcher with a more generalised viewpoint on workplace inequality. This was the only question on the survey that features an 'I'm unsure' selection. This answer selection was introduced as some respondents may feel that the question may be challenging to answer, or they may not have enough workplace experience to give a yes or no response.

The seventh question asks if gender plays a key role in the success or failure of an athlete. This would help to address the gender stereotype argument in sport, for example females can't play football because it's a 'mans' game.

The eighth question briefly follows on from question seven and asks if female participation is on the rise in male dominated sports such as football, rugby etc. This question addresses the generalised response to a more gender inclusive view on mainstream sports.

Question nine looks to explore if parental influence determines what sports their children play based on gender specific sports e.g. a father may expect his son to play or compete in rugby, football or

karting and does a mother expect her daughter to play netball or gymnastics. These gender stereotype attitudes towards specific sports are deep rooted in history rather than modern times.

The 10th question asks if males are more likely to be interested in vehicles than women. This is a key question in the survey and would clearly show any gender bias and cements the point in question.

Question 11 is the first motorsport-based question. It asks if female only racing championships will help to promote female involvement within the industry. The results taken from this question would show how survey participants view the role of women in the motorsport industry and also establish whether there is a gender bias response to how the question is answered.

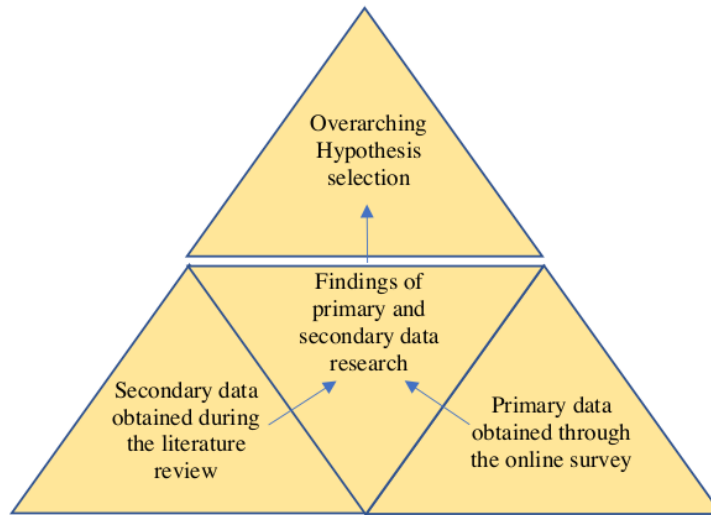
Question 12 asks if females can physically compete against males in motorsport. The physicality of a racing driver could be considered a major factor when determining if females and males can compete using the same vehicles. Some survey participants may believe that male drivers can handle gravitational forces better than female drivers? Whereas others may feel that this is not the case!

Question 13 looks to identify if sporting organisations are paying enough attention to female inclusion. For example, are FIFA paying enough attention to promoting female football, and in the case of motorsport are the FIA paying enough attention to female inclusion.

The 14th and 15th questions focused on television viewing and whether gender plays a key role in the sports that the general public prefer to watch.

Question 16 asks if the public if they would like to see non-gender inclusive competitions being introduced to all mainstream sports. For example, male and female mixed football teams competing against other male and female teams.

3.5 Triangulation of data collection methods



Triangulation of the data collection methods can be used in order to discover the trustworthiness of the combined data. During this research secondary data will be obtained from previous literature on the subject of gender in the motorsport industry. This secondary research data can then be compared to the primary qualitative data collected through the online survey. After both the primary and secondary research findings are concluded, parallels in the data can be drawn and will determine the hypothesis that is selected.

Chapter 4- Analysis

4.1 Introduction to analysis chapter

This chapter provides a detailed analysis of the primary data that was obtained from the survey. The primary data was analysed using IBM's Statistical Package for Social Sciences (SPSS). This hypothesis will be tested using SPSS's Chi-square test function. The Chi-square test determines the statistical association between the independent variable (demographic questions) and the dependent variable (Q4-Q16). SPSS further shows the degrees of freedom and the resulting P value. The P value is used to interpret the validity of the result. The Chi-square function is only applicable if under 20% of the cells have an expected count of under 5. The Chi-square test function suggests that if the variables expectancy is over 20% then the assumption has been violated and a different approach should be used. In the case of this study, if over 20%, Fishers exact test is utilised rather than Chi-squared. This study utilised Vasserstats.net Online Fisher test generator.

In the case of this analysis 39 tests were conducted, 30 of those were Pearson's Chi-square tests and 8 were Fisher exact tests (tests that had a variable expectancy over 20% or under 5 counts). A Kruscal-Wallis H test was used to test the income of respondents against question 6 (Do Men get promoted easier within the workplace than females?). The Kruscal-Wallis H test was used as over 20% of the cells had an expected count of under 5, therefore ruling out a chi-square function. In-addition to this the Fisher test was further ruled out as the N (total size of the data set) was over the limited $N \leq 90$.

Phi and Cramer's V level of association further determines the strength of the relationship between each variable. Note, Phi can be used when one of the categories has two variables (for example yes/no), Cramer's V should be used if one of the categories uses more than two variables (for example yes/no/maybe). The Phi and Cramer's V states that there are three levels that should be observed when assessing association, these levels are seen below in figure 4.1

Value	Strength
Between 0.0 and 0.10	Weak
Between 0.10 and 0.30	Moderate
Greater than 0.30	Strong

Figure 4.1- interpretation of Phi and Cramer's V level of strength (Tough, N.d)

4.2 Demographics

A total of 234 survey responses were returned. Post scrutiny of the data determined that a total of 226 responses were deemed appropriate for final analysis. Demographic results (age, gender and earnings) and the questions being asked will provide the foundation on which both the hypothesis is formed upon.

Q1 Gender

	Frequency	Percent	Valid percent	Cumulative percent
Male (1)	74	32.70%	32.70%	32.70%
Female (2)	152	67.30%	67.30%	100.00%
Totals	226	100%	100%	

Figure 4.2 Respondents by Gender

Figure 4.2 above shows a breakdown in respondents by gender. The data shows that 152 respondents (67.3%) were female, therefore an element of gender bias will be present throughout the analysis.

Q2 Age

The data in figure 4.3 shows a breakdown of the ages of respondents. The data presented in figure 4.3 shows that the majority of those who answered the survey were aged between 18-30 years of age. The age of the respondent is critical in determining if there is an association between different age categories and how they answer the question.

	Frequency	Percent	Valid percent	Cumulative percent
Under 18 Years of age (1)	4	1.8%	1.8%	1.80%
18-30 Years of age (2)	138	61.1%	61.1%	62.80%
31-40 Years of age (3)	20	8.8%	8.8%	71.70%
41-55 Years of age (4)	53	23.5%	23.5%	95.10%
56+ Years of age (5)	11	4.9%	4.9%	100%
Totals	226	100%	100%	

Figure 4.3 respondents by age

After an initial Chi-square test concluded that the parameters for age were too large, SPSS's recoding function was used to split the ages into two groups 1 and 2 (could be considered as young and old) as seen in figure 4.4 below. Although a Chi-square test can now be completed fully, collapsing the data lowers the level of detail (granularity) of the data.

	Frequency	Percent	Valid percent	Cumulative percent
Under the age of 41 (1)	162	71.70%	71.70%	71.70%
41-56+ Years of Age (2)	64	28.30%	28.30%	100.00%
Totals	226	100%	100%	

Figure 4.4 combined age of respondents used in Chi-square test.

Q3 Earnings

Earnings (before tax)

Earnings	Frequency	Percent	Valid percent	Cumulative percent
Under £20,000 (1)	130	57.50%	57.50%	57.50%
£20,000-£24,999 (2)	29	12.80%	12.80%	70.40%
£25,000-£34,999 (3)	31	13.70%	13.70%	84.10%
£35,000-£44,999 (4)	20	8.80%	8.80%	92.90%
£45,000-£49,999 (5)	3	1.30%	1.30%	94.20%
£50,000-£69,000+ (6)	13	5.80%	5.80%	100.00%
Totals	226	100.00%	100%	

Figure 4.5 earnings of respondents (before tax)

Collapsed data was used whilst conducting Chi-square tests that considered the earnings of the respondents. The data groupings, as seen in figure 4.6, is combined earnings= earnings 1+2 (1), earnings 3+4 (2), earnings 5+ (3)

	Frequency	Percent	Valid percent	Cumulative percent
Up to £24,999 per year (1)	159	70.40%	70.40%	70.40%
£25,000-£44,999 per year (2)	51	22.60%	22.60%	22.60%
£45,000 per year + (3)	16	7.10%	7.10%	100%
Totals	226	100%	100%	

Figure 4.6 combined earnings of respondents (before tax) used in Chi Square test

4.3 Executive summary of tests conducted

	Age Combined	Gender	Income Combined (Before Tax)
Q4	X= .875a, df=1 , p=.350	X= 13.513a, df=1 , p=.000 ***	X= 1.565a, df=2 , p=.457
Q5	X= 3.017a, df=1 , p=.082	X= 30.806a , df=1 , p=.000 ***	X=2.224a, df=2 , p=.329
Q6	X= 3.640a , df=2 , p=.162	X= 18.846a, df=2 , p=.000 ***	Kruskal-Wallis H Test- X=2.465ab, df=5, p=.780
Q7	X= 5.473a , df=1 , p=.019 **	X= 12.472a, df=1 , p=.000 ***	X= 3.359a, df=2 , p=.187
Q8	Fisher exact p=.573	Fishers exact p=.4187	Fishers exact p=1.0
Q9	X= 1.604a, df=1 , p=.205	X=.826a, df=1 , p=.364	Fishers exact p=.196
Q10	X=.379a, df=1 , p=.538	X= 9.548a, df=1 , p=.002 **	X= 2.453a, df=2 , p=.293
Q11	X= 5.965, df=1 , p=.015	X=.14a, df=1 , p=.906	X= 1.205a, df=2 , p=.547
Q12	X=.375a, df=1 , p=.540	X=.738a, df=1 , p=.390	Fishers exact p=.595
Q13	X=1.650a, df=1, p=.199	X=1.436a , df=1 , p=.000 ***	X= 0.22a, df=2 , p=.989
Q14	Fishers exact p=.5738	Fishers exact p=.0732	Fishers exact p=0.0510 *
Q15	X=2.943a, df=1, p=.086	X= 2.645a, df=1 , p=.104	X=1.351, df=2 , p=.509
Q16	X=1.298a, df=1, p=.255	X= 12.985a, df=1 , p=.000 ***	X=7.492, df=2 , p=.0248 *

X= test result (Chi, Kruskal-Wallis)
df= Degrees of freedom
p = Asymptotic Significance (P Value)

Chi-square tests=30
Fishers Exact tests=8
Kruskal-Wallis H tests=1
Total tests conducted= 39

*	p= less than or equal to	0.05	Significant
**	p= less than or equal to	0.01	Highly Significant
***	p= less than or equal to	0.001	Very Highly Significant

4.4 Summary of significance per demographic question

4.4.1 Age combined

	Significance present	No significance shown
Q4		p= .350
Q5		p= .082
Q6		p= .162
Q7	p=.019	
Q8		p= .573
Q9		p= .205
Q10		p= .538
Q11	p=.015	
Q12		p= .540
Q13		p= .199
Q14		p= .573
Q15		p= .086
Q16		p= .255

No statistical significance shown thus Null hypothesis accepted (H0)

There is statistical significance present thus alternative hypothesis is selected (H1)

Figure 4.6- Significance of age/question

4.4.1.1 Chi-square test for age combined (Q1) and the belief that gender plays a key role in the success or failure of an athlete (Q7).

H₁. There is no difference between age and belief that gender plays a key role in the success or failure of an athlete(null)

H_{1a}. There is a difference between age and belief that gender plays a key role in the success or failure of an athlete (alternate)

Test results

Chi-square= 5.473a, degrees of freedom=1, p value =.019

With the P value being less than or equal to 0.01 it shows that this test is highly statistically significant therefore meaning that the null (H₁) hypothesis is rejected and the alternate hypotheses(H_{1a}) is accepted. Utilizing Phi (2x2) shows a result of .156 which would mean that there is a moderate positive relationship between the age of the respondent and whether they believe that gender plays a key role in the success or failure of an athlete.

Utilizing SPSS's crosstabulation function, showed that **81** respondents (35.84%) who are under the age of 41 and **21** (9.29%) respondents who are aged 41 or over believe that gender does play a key

role in the success or failure of an athlete. The crosstabulation function also showed that **81** respondents (35.84%) who are under the age of 41 and **43** (19.03%) respondents who are aged 41 or over believe that gender doesn't play a key role in the success or failure of an athlete.

4.4.1.2- Chi square test for age combined (Q1) and the belief that gender specific series will entice women to compete in motorsport (Q11)

H₂- there is no difference between ages and belief that gender specific series will entice women to compete in motorsport (null)

H_{2a}- there is a difference between age and belief that gender specific series will entice women to compete in motorsport (alternate)

Test results

Chi-square= 5.965a, degrees of freedom=1, p value =.015

With the P value being less than or equal to 0.01 it shows that this test is highly statistically significant therefore meaning that the null (H₂) hypothesis is rejected and the alternate hypotheses(H_{2a}) is accepted. Utilizing Phi (2x2) shows a result of .206 which would mean that there is a moderate positive relationship between the age of the respondent and their belief that gender specific series will entice women to compete in motorsport.

Utilizing SPSS's crosstabulation function, showed that **117** of the respondents (51.76%) who are under the age of 41 and **56**(24.77%) of the respondents who are aged 41 or over believe that gender specific series will entice women to compete in motorsport. The crosstabulation function also showed that **45** respondents (19.91%) who are under the age of 41 and **8** (3.56%) respondents who are aged 41 or over believe that gender specific series will entice women to compete in motorsport

4.4.2 Gender

	Significance present	no significance shown	No statistical significance shown thus Null hypothesis accepted (H0)	
Q4	p= .000			
Q5	p= .000		There is statistical significance present thus alternative hypothesis is accepted (H1)	
Q6	p= .000			
Q7	p= .000			
Q8		p= .487		
Q9		p= .364		
Q10	p= .002			
Q11		p= .906		
Q12		p= .390		
Q13	p= .000			
Q14		p= .073		
Q15		p= .104		
Q16	p= .000			

Figure 4.7- Significance of gender/question

4.4.2.1 Chi square test for gender (Q2) and viewership of sporting activities (Q4)

H₃. There is no difference between gender and if they watch sport (null)

H_{3a}. There is a difference between gender and if they watch sport (alternate)

Test results

Chi-square= 13.531a, degrees of freedom=1, p value =.0000

With the P value being less than or equal to 0.000 it shows that this test is very highly statistically significant therefore meaning that the null (H₃) hypothesis is rejected and the alternate hypotheses (H_{3a}) is accepted. Utilizing Phi (2x2) shows a result of .245 which would mean that there is a moderate positive relationship between gender and viewership of sporting activities.

Utilizing SPSS's crosstabulation function, showed that **65** male respondents (28.7%) along with **98** female respondents (43.5%) watch sporting activities. The crosstabulation function also showed that **9** male respondents (3.9%) and **54** (23.8%) of female respondents do not watch sporting activities. This data also shows that 72.2% of respondents watch sporting activities, compared to 27.8% of participants who don't.

4.4.2.2 Chi square test for gender (Q2) and participation in sporting activities (Q5)

H₄- There is no difference between gender and if they participate in sporting activities (null)

H_{4a}- There is a difference between gender and if they participate in sporting activities(alternate)

Test results

Chi-square= 30.806a, degrees of freedom=1, p value =.0000

With the P value being less than or equal to 0.000 it shows that this test is very highly statistically significant therefore meaning that the null (H₄) hypothesis is rejected and the alternate hypotheses (H) is accepted. Utilizing Phi (2x2) shows a result of .369 which would mean that there is a strong positive relationship between gender and participation in sporting activities.

Utilizing SPSS's crosstabulation function, showed that **49** male respondents (21.7%) along with **42** female respondents (18.6%) compete in sporting activities. The crosstabulation function also showed that **25** male respondents (11.1%) and **110** (48.6%) of female respondents do not compete in sporting activities. This data also shows that 40.3% of the respondents compete in sporting activities, compared to the 59.7% of participants who don't.

4.4.2.3 Chi square test for gender (Q2) and the belief that males get promoted easier in the workplace(Q6)

H₅- There is no difference between gender and the belief that males get promoted easier in the workplace(null)

H_{5a}- There is a difference between gender and the belief that males get promoted easier in the workplace (alternate)

Test results

Chi-square= 18.46a, degrees of freedom=2, p value =.0000

With the P value being less than or equal to 0.000 it shows that this test is very highly statistically significant therefore meaning that the null (H₅) hypothesis is rejected and the alternate hypotheses (H_{5a}) is accepted. Utilizing Cramer's V (2x3) shows a result of .289 which would mean that there is a moderately positive relationship between gender and the belief that males get promoted easier in the workplace.

Utilizing SPSS's crosstabulation function, **27** male respondents (11.9%) along with **100** female respondents (44.2%) believe that males do in-fact get promoted easier within the workplace. The crosstabulation function also showed that **28** male respondents (12.4%) and **25** (11.06%) of female respondents believe males don't get promoted easier than females in the workplace. This data also featured a "I'm unsure" answer selection. The data shows that there was a total of 19 (8.6%) male participants that didn't know how to answer this question and 27 (12%) female participants. This data

shows that the majority (56.1%) of participants believe that males get promoted easier in the workplace than women.

4.4.2.4 Chi square test for gender (Q2) and the belief that gender plays a key role in the success or failure of an athlete (Q7)

H₆. There is no difference between genders and their beliefs that gender plays a key role in the success or failure of an athlete (null)

H_{6a}. There is a difference between genders and their beliefs that gender plays a key role in the success or failure of an athlete (alternate)

Test results

Chi-square= 12.472a, degrees of freedom=1, p value =.0000

With the P value being less than or equal to 0.000 it shows that this test is very highly statistically significant therefore meaning that the null (H₆) hypothesis is rejected and the alternate hypotheses (H_{6a}) is accepted. Utilizing Phi (2x2) shows a result of -.235 which would mean that there is a moderately negative relationship between gender and the belief that gender plays a key role in the success or failure of an athlete.

Utilizing SPSS's crosstabulation function, **21** male respondents (9.2%) along with **81** female respondents (35.8%) believe that gender does play a key role in the success or failure of an athlete. The crosstabulation function also showed that **53** male respondents (23.4%) and **71** (31.4%) believe that gender does not play a key role in the success or failure of an athlete. This data shows that the majority of respondents (54%) believe that gender doesn't play a key role in the success or failure of an athlete.

4.4.2.5 Chi square test for Gender (Q2) and the belief that males are more likely to be interested in vehicles (Q10)

H₇. There is no difference between gender and the belief that males are more likely to be interested in vehicles (null)

H_{7a}. There is a difference between gender and the belief that males are more likely to be interested in vehicles (alternate)

Test results

Chi-square= 9.458a, degrees of freedom=1, p value =.002

With the P value being less than or equal to 0.002 it shows that this test is highly statistically significant therefore meaning that the null (H₇) hypothesis is rejected and the alternate hypotheses (H_{7a}) is accepted. Utilizing Phi (2x2) shows a result of .206 which would mean that there is a moderately positive relationship between gender and participation in sporting activities.

Utilizing SPSS's crosstabulation function, **60** of the male respondents (26.5%) along with **92** of the female respondents (40.7%) believe that males are more likely to be interested in vehicles than females. The crosstabulation function also showed that **14** of the male respondents (6.1%) and **60** (26.5%) of the female respondents do not believe that females are more likely to be interested in vehicles than women. This data shows that 67.2% of the total respondents believe that males are more likely to be interested in vehicles than females.

4.4.2.6 Chi square test for gender (Q2) and if national sporting organisations are paying enough attention to female inclusion in their respective sports(Q13)

H₈. There is no difference between gender and the belief that national sporting organisations are paying enough attention to female inclusion in their respective sports. (null)

H_{8a}. There is a difference between gender and the belief that national sporting organisations are paying enough attention to female inclusion in their respective sports. (alternate)

Test results

Chi-square= 16.436a, degrees of freedom=1, p value =.0000

With the P value being less than or equal to 0.000 it shows that this test is very highly statistically significant therefore meaning that the null (H₈) hypothesis is rejected and the alternate hypotheses (H_{8a}) is accepted. Utilizing Phi (2x2) shows a result of .270 which would mean that there is a strong positive relationship between gender and their belief that national sporting organisations are paying enough attention to female inclusion in their respective sports.

Utilizing SPSS's crosstabulation function, **35** male respondents (15.4%) along with **32** female respondents (14.15%) believe that national sporting organisations are paying enough attention to female inclusion in their respective sports. The crosstabulation function also showed that **39** male respondents (17.3%) and **120** (53.2%) of female respondents believe that national sporting organisations are not paying enough attention to female inclusion in their respective sports. This data clearly shows that over 70% of respondents believe that sporting organisations are not paying enough attention to female inclusion within their respective sports.

4.4.2.7 Chi square test for gender (Q2) and if mainstream sports should introduce mixed-gender competitions (Q16)

H₉. There is no difference between a genders view on the introduction of mixed-gender sporting competitions (null)

H_{9a}. There is a difference between a gender view on the introduction of mixed-gender sporting competitions (alternate)

Test results

Chi-square= 12.985a, degrees of freedom=1, p value =.000

With the P value being less than or equal to 0.000 it shows that this test is very highly statistically significant therefore meaning that the null (H_0) hypothesis is rejected and the alternate hypotheses (H_{9a}) is accepted. Utilizing Phi (2x2) shows a result of -.240 which would mean that there is a moderate negative relationship between gender and if mainstream sports should introduce mixed-gender competitions.

Utilizing SPSS's crosstabulation function, **30** male respondents (13.3%), along with **100** female respondents (44.2%) believe that mainstream sports should introduce mixed-gender competitions. The crosstabulation function also showed that **44** male respondents (19.5%) and **52** (23%) of female respondents believe that mainstream sports should not introduce mixed-gender competitions. This data shows that that the majority (57.5%) of the respondents believe that mainstream sports should introduce mixed-gender competitions.

4.4.3 Income combined

	significance	no significance shown	
Q4		p= .457	No statistical significance shown thus Null hypothesis accepted (H0)
Q5		p= .329	
Q6		p= .780	
Q7		p= .187	
Q8		P= 1.00	
Q9		p= .196	
Q10		p= .293	
Q11		p= .547	
Q12		p= .595	
Q13		p= .989	
Q14	p= .051		
Q15		p= .509	
Q16	p= .024		There is statistical significance present thus alternative hypothesis is accepted (H1)

Figure 4.8- Significance of income/questions

4.4.3.1 Fishers exact test for income (Q3) and the belief that male dominated sports attract more spectators/televised viewers than females (Q14)

H₁₀- There is no difference between income and the belief that male dominated sports attract more spectators/televised viewers than female dominated sports (null)

H_{10a}- There is a difference between income and the belief that male dominated sports attract more spectators/televised viewers than female dominated sports (alternate)

Test results

	C ₁	C ₂	C ₃	Totals	
R ₁	145	51	15	211	P _A = 0.05108955250164774
R ₂	14	0	1	15	P _B = 0.05108955250164774
Totals	159	51	16	226	No. of tables evaluated = 136

Figure 4.9- Screenshot of Vasserstats.net online Fisher test generator results

With the P value (that was generated using Fishers Exact test) being less than or equal to 0.05 it shows that this test is statistically significant therefore meaning that the null (H₁₀) hypothesis is rejected and the alternate hypotheses (H_{10a}) is accepted. Utilizing Cramer's V (3x2) shows a result of .146 which would mean that there is a moderate positive relationship between income and the belief that male dominated sports attract more spectators/televised viewers than females.

Utilizing SPSS's crosstabulation function, **145** respondents (who earn up to £24,999) believe that male dominated sports attract more spectators/televised viewers, compared to 14 respondents (who earn up to £24,999) who believe that male dominated sports do not attract more spectators/televised viewers. This data also shows that all participants with an income between £25,000-£44,999 per year believe that male dominated sports attract more spectators/televised viewers than female dominated sports. The crosstabulation function also shows that 15 of the 16 respondents who earn £45,000+ believe that male dominated sports attract more spectators/televised viewers. The results of this data conclude that 93% of respondents believe that male dominated sports attract more spectators/televised viewers.

4.4.3.2 – Chi-square test for income (Q3) views if mainstream sports should introduce mixed-gender competitions (Q16)

H₁₁. There is no difference between income and views on the introduction of mixed-gender sporting competitions (null)

H_{11a}. There is a difference between income and views on the introduction of mixed-gender sporting competitions (alternate)

Chi-square= 7.492a, degrees of freedom=2, p value =.024

With the P value being less than or equal to 0.024 it shows that this test is statistically significant therefore meaning that the null (H₁₁) hypothesis is rejected and the alternate hypotheses (H_{11a}) is accepted. Utilizing Cramer's V (3x2) shows a result of .182 which would mean that there is a moderate positive relationship between income and mainstream sports introducing mixed-gender competitions.

Utilizing SPSS's crosstabulation function, **96** respondents (who earn up to £24,999) believe that male dominated sports attract more spectators/televised viewers, compared to **63** respondents (who earn up to £24,999) believe that male dominated sports do not attract more spectators/televised viewers. This data also shows that **30** out of the **51** respondents (which have an income between £25,000-£44,999 per year) believe that male dominated sports attract more spectators/televised viewers than female dominated sports. The crosstabulation function also shows that **12** of the **16** respondents who earn £45,000+ believe that sporting organisations of mainstream sports should introduce mixed-gender competitions.

4.5- Summary of analysis

Analysis of the data concludes that both male and female participants generally believe that female involvement and equality of gender in all sports is not balanced. Evidence of this statement can be predominantly seen in the results of questions 13,14 and 15 of the survey. Analysis of Q11 and Q12 concludes that there is an overriding viewpoint from the respondents that female drivers can compete at the same level as men in motorsport and females are just as physically able to compete as men. Analysis of Q9 shows that parents play a significant role in deciding the sports that their children play or compete in. This may be down to traditional viewpoints of gender dominated sports or previous sports that the parents have played/competed in.

Chapter 5 Conclusion

The null and alternate hypothesis that was tested during this research study was that;

H₀- The motorsport industry is not gender biased.

H_{0a}- The motorsport industry is gender biased.

5.1- Findings of the study

The qualitative based answers that were obtained from the survey concluded that there were mixed opinions on the null hypotheses statement. After analysing the data, it was clear that the gender of the respondent played a key role in the response that was given. Furthermore, the analysis that was conducted using SPSS concluded that the age and earnings of the participant played little statistical significance compared to the gender of the participant.

Although male respondents somewhat agree with female respondents on many of the 13 questions, the data presented in section 4.4.2 of the analysis showed that there was a large amount of statistical significance present surrounding gender. The responses from the survey further secures the argument that females are still overlooked in the sporting industry, with the majority of respondents believing that male dominated sports still attract more spectators/televised viewers than female sports. It could be considered that exposure of single gender sport is a contributing factor to the success of the sport overall, for example more televised sporting events that feature males. Although females may be somewhat under-represented in sport overall, the response to question eight concluded that female involvement in male dominated sports is in fact on the rise. This statement is not specific to motorsport as it is already a gender inclusive sport and could be more appropriate when discussing male dominated sports such as football or rugby.

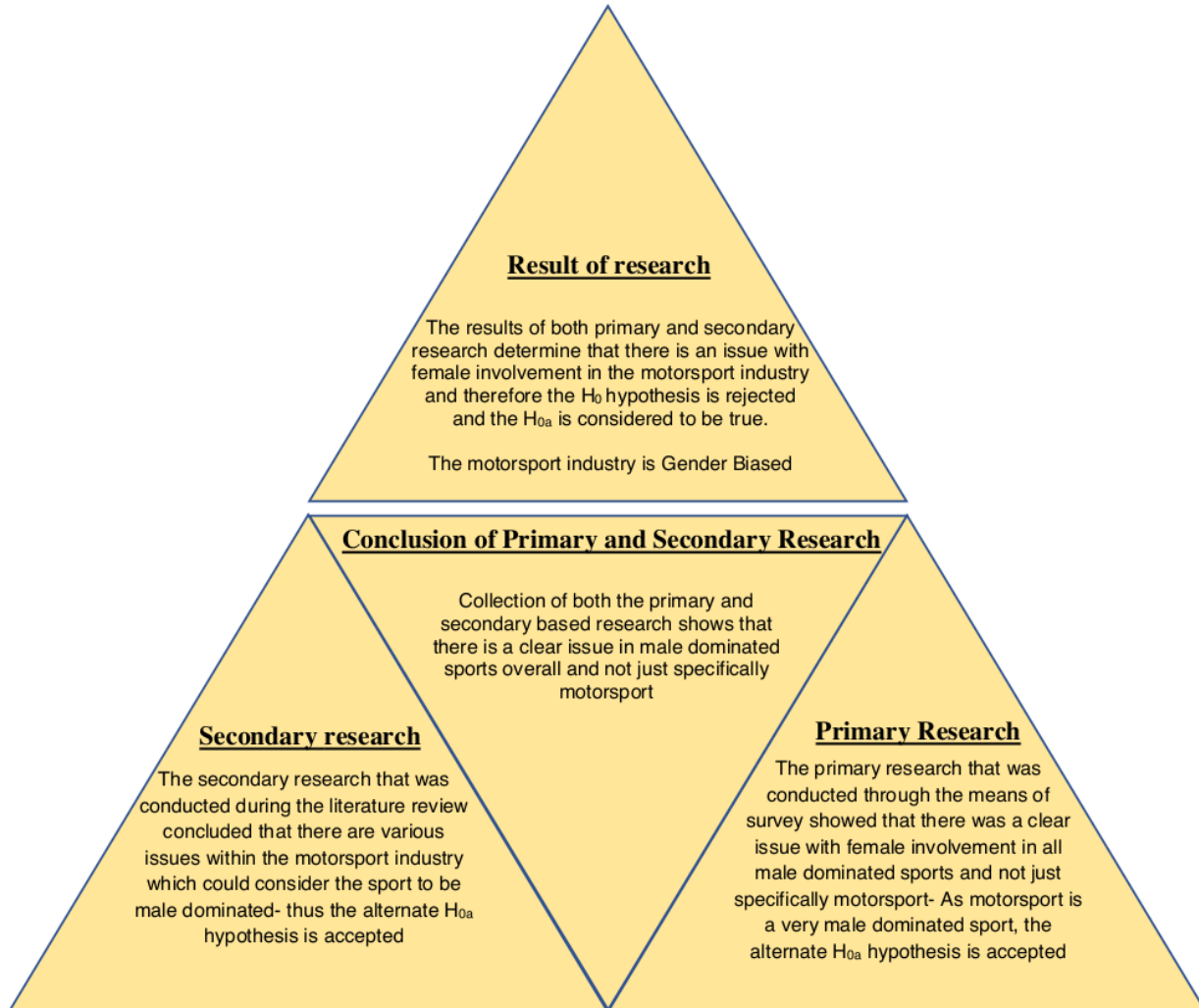
One of the stand out responses in the survey was question 9. It asked the participant if parents play a key role in influencing the sports their children decide to later compete in. The results of this question showed that 91.7% of respondents believed this to be true. This result could in-turn be a likely determining factor when considering female involvement in motorsport at a young age. A further question that may be formed, based on the result of question nine, could be around parent's perceptions of what they believe is a safe sport for their child, male or female. A further question could also focus on family traditions in sport and those that are very gender biased, e.g. football for boys, netball for girls. Some perceptions of what sports young children participate in are based on tradition rather than what the child would like to be involved in. These traditional views are changing but it is certainly a question I would add to the questionnaire if undertaken again. Another thought may be that the younger females are only competing in motorsport because their parents want them to race. Question 9 also has close links with Jolyon Palmer's comments on youth diversity in motorsport in theme two of the literature review. Palmer commented on this issue, stating "*If you look in karting, at age 6 or age 10, there is probably one girl for every 10 boys.*" (Spurgeon, 2016)

One of the main critiques surrounding females competing at a higher level of motorsport is their ability to physically compete against their male counterparts. Over 90% of the survey respondents believe that females can in fact compete physically against males in motorsport. This statistic shows and breaks the age-old viewpoint that females can't handle or control a race vehicle at high speeds.

5.2 Recommendations for improvement

The study that was conducted followed a post-positivist approach. Because of this, the survey questions could be biased towards those with more previous life experiences and knowledge on the subject of gender equality in sport. It could be considered that there are respondents who consistently change the way in which they would answer the question. An example of this is if the respondent can consistently see an increase in female sports being shown on TV, or sporting organisations marketing female sport. Their previous responses to the original questionnaire may change, and thus make their original answer on the survey invalid. Furthermore, the questions asked in the survey were very generic to sport overall, rather than specifically motorsport. Although the survey questions were formed so that the majority of respondents could answer the question as truthfully as possible, the survey questions focussed on male dominated mainstream sports including football and rugby rather than just motorsport. Ongoing research on the topic of gender equality in motorsport should be further considered to continue to gain a better understanding of viewpoints on the issue. Will viewpoints change with the times and is the industry heading towards the null hypothesis statement or are the advancements in gender equality in motorsport somewhat stagnating and following the alternate hypothesis statement?

5.3- Conclusion of findings using triangulation of the results



6.0- Citations used

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7.0 Appendices

Appendix A- Copy of Questions Asked During Questionnaire.

Q1- Gender of Respondent

Male, Female, Other

Q2- Age of Respondent

Under 18 years of age, 13,30 years of age, 31-40 years of age, 41-55 years of age, 56+ years of age

Q3- Annual Income of Respondent (Before Taxes)

Under £20,000, £20,000- £24,999, £25,000- £34,999, £35,000- £44,999, £45,000- £49,999, £50,000- £69,999, £70,000+

Q4- Do you watch sporting activities (such as Football, Netball, Motorsports etc)?

Yes, No

Q5- Do you compete in any sporting activities?

Yes, No

Q6- Do Men get promoted easier within the workplace than females?

Yes, No, I'm unsure

Q7- Do you believe that gender plays a key role in the success or failure of an athlete?

Yes, No

Q8- Do you believe that Female participation in male dominated sports is on the rise? (sports such as Formula One, Football, Rugby etc...)

Yes, No

Q9- Do you believe that parents play a key role in influencing the sports their children decide to later compete in?

Yes, No

Q10- Do you believe that Males are more likely to be interested in Vehicles (Motorbikes/Cars etc) than Females?

Yes, No

Q11- In Motorsport do you think that gender specific series (such as Formula W) will entice Women to compete in Motorsport series?

Yes, No

Q12- Do you believe that Females can physically compete against Males in Motorsport?

Yes, No

Q13- Do you believe that National Sporting Organisations are paying enough attention to Female inclusion in their respective sports? (Organisations such as the Football Association (FA) , Rugby Football Union (RFU), Welsh Rugby Union (WRU), Motorsport UK etc...)

Yes, No

Q14- Do you agree that Male dominated sports attract more spectators/televised viewers than Females?

Yes, No

Q15- Following on from question 14, do you believe that viewing/spectator figures play a key role in the success or failure of respective sports?

Yes, No

Q16- 16. Do you believe that sporting organisations should introduce mixed-gender competitions in mainstream sports such as Football, Rugby, Cricket etc?

Yes, No

Appendix B- SPSS Chi Square Test Results.

Chi-square test for age combined (Q1) and the belief that gender plays a key role in the success or failure of an athlete (Q7).

Agecombined * Q7 Crosstabulation

		Q7		Total
		1.00	2.00	
Agecombined	1.00	Count	81	81
		Expected Count	73.1	88.9
		% within Agecombined	50.0%	50.0%
		% within Q7	79.4%	65.3%
	2.00	Count	21	43
		Expected Count	28.9	35.1
		% within Agecombined	32.8%	67.2%
		% within Q7	20.6%	34.7%
Total	Count		102	124
	Expected Count		102.0	124.0
	% within Agecombined		45.1%	54.9%
	% within Q7		100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.473 ^a	1	.019		
Continuity Correction ^b	4.801	1	.028		
Likelihood Ratio	5.574	1	.018		
Fisher's Exact Test				.026	.014
Linear-by-Linear Association	5.449	1	.020		
N of Valid Cases	226				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 28.88.

b. Computed only for a 2x2 table

Chi square test for age combined (Q1) and the belief that gender specific series will entice women to compete in motorsport (Q11)

Agecombined * Q11 Crosstabulation

		Q11		Total
		1.00	2.00	
Agecombined	1.00	Count	117	45
		Expected Count	124.0	38.0
		% within Agecombined	72.2%	27.8%
		% within Q11	67.6%	84.9%
	2.00	Count	56	8
		Expected Count	49.0	15.0
		% within Agecombined	87.5%	12.5%
		% within Q11	32.4%	15.1%
Total	Count		173	53
	Expected Count		173.0	53.0
	% within Agecombined		76.5%	23.5%
	% within Q11		100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.965 ^a	1	.015		
Continuity Correction ^b	5.144	1	.023		
Likelihood Ratio	6.533	1	.011		
Fisher's Exact Test				.015	.010
Linear-by-Linear Association	5.938	1	.015		
N of Valid Cases	226				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.01.

b. Computed only for a 2x2 table

Is the motorsport industry gender biased? Daniel Tate- 1701938

Chi square test for Gender (Q2) and viewership of sporting activities (Q4)

Gender * Q4 Crosstabulation

			Q4		
			1.00	2.00	Total
Gender	Male	Count	65	9	74
		Expected Count	53.4	20.6	74.0
		% within Gender	87.8%	12.2%	100.0%
		% within Q4	39.9%	14.3%	32.7%
	Female	Count	98	54	152
		Expected Count	109.6	42.4	152.0
		% within Gender	64.5%	35.5%	100.0%
		% within Q4	60.1%	85.7%	67.3%
Total	Count	163	63	226	
	Expected Count	163.0	63.0	226.0	
	% within Gender	72.1%	27.9%	100.0%	
	% within Q4	100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	13.513 ^a	1	.000		
Continuity Correction ^b	12.376	1	.000		
Likelihood Ratio	14.907	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	13.453	1	.000		
N of Valid Cases	226				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.63.

b. Computed only for a 2x2 table

Chi square test for Gender (Q2) and participation in sporting activities (Q5)

Gender * Q5 Crosstabulation

			Q5		
			1.00	2.00	Total
Gender	Male	Count	49	25	74
		Expected Count	29.8	44.2	74.0
		% within Gender	66.2%	33.8%	100.0%
		% within Q5	53.8%	18.5%	32.7%
	Female	Count	42	110	152
		Expected Count	61.2	90.8	152.0
		% within Gender	27.6%	72.4%	100.0%
		% within Q5	46.2%	81.5%	67.3%
Total	Count	91	135	226	
	Expected Count	91.0	135.0	226.0	
	% within Gender	40.3%	59.7%	100.0%	
	% within Q5	100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	30.806 ^a	1	.000		
Continuity Correction ^b	29.223	1	.000		
Likelihood Ratio	30.832	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	30.670	1	.000		
N of Valid Cases	226				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 29.80.

b. Computed only for a 2x2 table

Chi square test for Gender (Q2) and the belief that males get promoted easier in the workplace(Q6)

Gender * Q6 Crosstabulation

			Q6			
			Yes	no	Unsure	Total
Gender	Male	Count	27	28	19	74
		Expected Count	41.6	17.4	15.1	74.0
		% within Gender	36.5%	37.8%	25.7%	100.0%
		% within Q6	21.3%	52.8%	41.3%	32.7%
	Female	Count	100	25	27	152
		Expected Count	85.4	35.6	30.9	152.0
		% within Gender	65.8%	16.4%	17.8%	100.0%
		% within Q6	78.7%	47.2%	58.7%	67.3%
Total	Count	127	53	46	226	
	Expected Count	127.0	53.0	46.0	226.0	
	% within Gender	56.2%	23.5%	20.4%	100.0%	
	% within Q6	100.0%	100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.846 ^a	2	.000
Likelihood Ratio	18.731	2	.000
Linear-by-Linear Association	10.773	1	.001
N of Valid Cases	226		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.06.

Chi square test for Gender (Q2) and the belief that gender plays a key role in the success or failure of an athlete (Q7)

Gender * Q7 Crosstabulation

			Q7		
			1.00	2.00	Total
Gender	Male	Count	21	53	74
		Expected Count	33.4	40.6	74.0
		% within Gender	28.4%	71.6%	100.0%
		% within Q7	20.6%	42.7%	32.7%
	Female	Count	81	71	152
		Expected Count	68.6	83.4	152.0
		% within Gender	53.3%	46.7%	100.0%
		% within Q7	79.4%	57.3%	67.3%
Total	Count	102	124	226	
	Expected Count	102.0	124.0	226.0	
	% within Gender	45.1%	54.9%	100.0%	
	% within Q7	100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.472 ^a	1	.000		
Continuity Correction ^b	11.487	1	.001		
Likelihood Ratio	12.818	1	.000		
Fisher's Exact Test				.001	.000
Linear-by-Linear Association	12.417	1	.000		
N of Valid Cases	226				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 33.40.

b. Computed only for a 2x2 table

Chi square test for Gender (Q2) and the belief that males are more likely to be interested in vehicles (Q10)

Gender * Q10 Crosstabulation

			Q10		Total
			1.00	2.00	
Gender	Male	Count	60	14	74
		Expected Count	49.8	24.2	74.0
		% within Gender	81.1%	18.9%	100.0%
		% within Q10	39.5%	18.9%	32.7%
	Female	Count	92	60	152
		Expected Count	102.2	49.8	152.0
		% within Gender	60.5%	39.5%	100.0%
		% within Q10	60.5%	81.1%	67.3%
	Total	Count	152	74	226
		Expected Count	152.0	74.0	226.0
% within Gender		67.3%	32.7%	100.0%	
% within Q10		100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.548 ^a	1	.002		
Continuity Correction ^b	8.638	1	.003		
Likelihood Ratio	10.105	1	.001		
Fisher's Exact Test				.002	.001
Linear-by-Linear Association	9.506	1	.002		
N of Valid Cases	226				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.23.

b. Computed only for a 2x2 table

Chi square test for Gender (Q2) and if national sporting organisations are paying enough attention to Female inclusion in their respective sports(Q13)

Gender * Q13 Crosstabulation

			Q13		Total
			1.00	2.00	
Gender	Male	Count	35	39	74
		Expected Count	21.9	52.1	74.0
		% within Gender	47.3%	52.7%	100.0%
		% within Q13	52.2%	24.5%	32.7%
	Female	Count	32	120	152
		Expected Count	45.1	106.9	152.0
		% within Gender	21.1%	78.9%	100.0%
		% within Q13	47.8%	75.5%	67.3%
	Total	Count	67	159	226
		Expected Count	67.0	159.0	226.0
% within Gender		29.6%	70.4%	100.0%	
% within Q13		100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	16.436 ^a	1	.000		
Continuity Correction ^b	15.202	1	.000		
Likelihood Ratio	15.917	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	16.363	1	.000		
N of Valid Cases	226				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.94.

b. Computed only for a 2x2 table

Chi square test for Gender (Q2) and if mainstream sports should introduce mixed-gender competitions (Q16)

Gender * Q16 Crosstabulation

		Q16		Total
		1.00	2.00	
Gender	Male	Count	30	44
		Expected Count	42.6	31.4
		% within Gender	40.5%	59.5%
		% within Q16	23.1%	45.8%
	Female	Count	100	52
		Expected Count	87.4	64.6
		% within Gender	65.8%	34.2%
		% within Q16	76.9%	54.2%
Total	Count	130	96	226
	Expected Count	130.0	96.0	226.0
	% within Gender	57.5%	42.5%	100.0%
	% within Q16	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.985 ^a	1	.000		
Continuity Correction ^b	11.973	1	.001		
Likelihood Ratio	12.951	1	.000		
Fisher's Exact Test				.001	.000
Linear-by-Linear Association	12.928	1	.000		
N of Valid Cases	226				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 31.43.

b. Computed only for a 2x2 table

Chi-square test for income (Q3) views if mainstream sports should introduce mixed-gender competitions (Q16)

Incomecombined * Q16 Crosstabulation

		Q16		Total
		1.00	2.00	
Incomecombined	1.00	Count	96	63
		Expected Count	91.5	67.5
		% within Incomecombined	60.4%	39.6%
		% within Q16	73.8%	65.6%
	2.00	Count	30	21
		Expected Count	29.3	21.7
		% within Incomecombined	58.8%	41.2%
		% within Q16	23.1%	21.9%
	3.00	Count	4	12
		Expected Count	9.2	6.8
		% within Incomecombined	25.0%	75.0%
		% within Q16	3.1%	12.5%
Total	Count	130	96	226
	Expected Count	130.0	96.0	226.0
	% within Incomecombined	57.5%	42.5%	100.0%
	% within Q16	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.492 ^a	2	.024
Likelihood Ratio	7.547	2	.023
Linear-by-Linear Association	4.577	1	.032
N of Valid Cases	226		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.80.