

Master of Science in Public Health



*Assessment of Quality of Life after Injury among
Hockey Players in Islamabad*

By

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*Assessment of Quality of Life after Injury among
Hockey Players in Islamabad*

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Declaration

In submitting this dissertation, I certify that I have read and understood the rules and regulations of DPH and QAU regarding assessment procedures and offences and formally declare that all work contained within this document is my own apart from properly referenced quotations.

I understand that plagiarism is the use or presentation of any work by others, whether published or not, and can include the work of other candidates. I also understand that any quotation from the published or unpublished works of other persons, including other candidates, must be clearly identified as such by being placed inside quotation marks and a full reference to their source must be provided in proper form.

This dissertation is the result of an independent investigation. Where my work is indebted to others, I have made acknowledgments.

I declare that this work has not been accepted in substance for any other degree, nor is it currently being submitted in candidature for any other degree.

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ABSTRACT

Background:

This study examines the impact of injuries on the quality of life (QoL) among hockey players. In the context of Islamabad's hockey community, the research aims to determine how injuries influence various dimensions of QoL and to provide insights for enhancing player well-being. The objectives of the study involve assessing the association between demographic characteristics and quality of life in hockey players after injury.

Methodology:

A cross-sectional study design was employed to gather data from a representative sample of hockey players in Islamabad who have experienced injuries. Validated quality of life assessment tools, including the Short Form Health Survey (SF-36) and the World Health Organization Quality of Life (WHOQOL) questionnaire, were administered to measure different domains of QoL. Data was collected through structured interviews, with ethical considerations and informed consent ensured.

Results:

The findings demonstrated noteworthy connections between demographic factors and the measured quality of life domains. For instance, education level, monthly income, professional involvement in hockey, treatment approach, and social support exhibited significant links with physical well-being. Similarly, psychological aspects showed correlations with education, employment status, injury impact on playing, and treatment methods. Monthly income and treatment emerged as significant variables for the social

domain, while education level, health insurance, and treatment methods were associated with the environmental domain. The SF-36 components unveiled that the physical component was influenced by gender, marital status, education, employment, playing experience, injury characteristics, treatment, and social support. On the other hand, mental health considerations were notably tied to gender, education, and treatment.

Conclusions:

The study highlights the significance of addressing the holistic well-being of hockey players beyond their athletic performance. Injury management strategies should encompass both physical rehabilitation and psychological support. The findings emphasize the need for tailored interventions targeting specific aspects of QoL, with implications for injury prevention programs, player education, and the development of comprehensive support networks within the hockey community.

Keywords: quality of life, injuries, hockey players, cross-sectional study, well-being, athlete health, injury prevention, psychological support.

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CHAPTER I: INTRODUCTION

Field hockey is recognized as an esteemed Olympic sport played by both men and women, captivating enthusiasts at both recreational and professional levels. The International Hockey Federation's expansive membership, encompassing approximately 132 national associations, attests to the global popularity of this thrilling sport. While hockey offers numerous physical and mental health benefits due to regular exercise, it is not without its risks. Injuries are an inherent part of any physical activity, and hockey players, despite their skill and agility, are not immune to them. The effect of these injuries is serving as the core focus of our investigation (Barboza, Joseph, Nauta, Van Mechelen, & Verhagen, 2018).

Engaging in sports brings numerous advantages, not just for the body but also for the mind. It improves psychological and physical growth in individuals, promoting a sense of discipline, teamwork, and camaraderie. However, sports injuries, unfortunately, remain a potential hurdle in the journey of athletes. These injuries can result in not only physical limitations but also psychological challenges. The loss of function during an activity can lead to distress and concerns for players. Among the emotional consequences of sports injuries, anxiety stands out as a significant factor that affects athletes. Studies have shown that heightened anxiety levels are linked to a higher likelihood of experiencing injuries. As such, it becomes crucial to address not only the physical aspects of injuries but also the psychological impact they have on players (K. J. P. J. o. M. Hazar & Sciences, 2021).

Beyond the realm of physical health, there is an emerging awareness regarding the mental well-being of athletes within the sports medicine community. While extensive research has

traditionally focused on the physical aspects of sports injuries, the emotional and psychosocial implications of these injuries have garnered increased attention. Recognizing that injuries can influence athletes' mental health, researchers are keen on exploring the psychological dynamics that come into play after an injury occurs (Forsdyke, Smith, Jones, & Gledhill, 2016).

Hockey holds a special place in Pakistan, where it is celebrated as the national sport. The Pakistan Hockey Federation (PHF) takes charge of managing and organizing the sport across the country. This affiliation with the International Hockey Federation (FIH) in 1948 has enabled Pakistan to make its mark on the global hockey stage. Over the years, Pakistan has achieved remarkable success in hockey, earning three Olympic Gold medals, four World titles, and an incredible eight victories at the Asian Games. Such accomplishments have made the nation proud and brought honor to its people. Not just once, but twice, Pakistan has managed to secure victory in three of the most prestigious titles in the entire world simultaneously: The Olympics, The World Cup, and The Asian Cup. What makes this achievement even more incredible is that no other hockey-playing country has managed to accomplish this remarkable triple win in the history of the game up till now (Iftikhar, Nazeer, Saeed, & Khan, 2021).

Despite its glorious past, hockey in Pakistan is facing challenges in the present day. The major hurdle comes from insufficient funding provided by the government. The lack of financial support has been detrimental to the progress and development of the sport. Without proper resources, training facilities, and opportunities for the athletes, the potential for future achievements becomes limited. It is essential for the government to recognize

the significance of hockey and invest in its growth, allowing new talents to emerge and carry forward the legacy of this beloved national sport (Nosheen & Aslam, 2022).

Like any physical activity, sports offer various benefits, but they can also have some downsides. For hockey players, the potential for physical injuries is a concern. Research on hockey injuries is still limited, but available studies indicate that the risk of getting hurt while playing hockey cannot be ignored. Although it is not unique to hockey, injuries can affect players' health and overall well-being. Hence, it is crucial to take preventive measures and promote safety in the game to protect the players and enable them to enjoy the sport without unnecessary risks (Davies et al., 2017).

Field hockey, a popular and long-standing sport, lacks sufficient research on its injuries. Studies comparing injury rates with other team sports like basketball, netball, and volleyball show similar levels. However, during major tournaments, field hockey sees more time loss injuries than even football (soccer). This highlights the need to address the risk of field hockey injuries seriously. Implementing safety measures, promoting awareness, and conducting targeted research can help ensure player well-being and the sport's continued growth. (Faude, Rößler, & Junge, 2013).

The idea of Quality of Life (QoL) is all about feeling good and happy, regardless of any health issues. On the other hand, Health-Related Quality of Life (HRQoL) looks at many things like how your body feels (physical), how you think (mental), and how you get along with others (social), especially when you're dealing with an injury. Some research shows

that injuries can affect how athletes feel about their lives, but not completely sure about this connection yet. Other studies have looked at how older people or people who aren't athletes feel about their lives, but they didn't really check how injuries play a part in this. Also, some studies only focused on whether the tools we use to measure injuries and QoL are good, without really looking at how these two things are connected. (Moreira, Vagetti, de Oliveira, & de Campos, 2014)

Moreover, it's quite the need of the time to assess the quality of life of hockey players because to the best of researcher's knowledge very limited studies have been published until now in Pakistan. Post injury impact is the ultimate goal for this proposed study. In conclusion, our cross-sectional study ventures to cast light on the quality of life experienced by hockey players in Islamabad subsequent to sustaining injuries.

1.1 Rationale:

Injuries can have a profound impact on athlete's overall well-being. When players get injured while participating in sports, it not only affects their physical health but also takes a toll on their emotions and social life. Despite the existing studies on sports injuries, there remains a noticeable gap in the research, especially when it comes to understanding how these injuries specifically influence the lives of players in Islamabad. Despite the existing studies on sports injuries, there remains a noticeable gap in the research, especially when it comes to understanding how these injuries specifically influence the lives of players.

This research aims to bridge that gap by focusing on the experiences of athletes in Islamabad who have suffered injuries. By doing so, it seeks to uncover valuable insights into the quality of life they experience during the recovery process and beyond. Understanding how injuries affect player's lives is essential as it allows us to evaluate the effectiveness of the current injury prevention and treatment methods in place for athletes. The findings from this study can help identify areas of improvement in sports safety and injury management, thereby ensuring that players receive the best possible care and support.

Moreover, this research goes beyond just the physical aspect of injuries. It recognizes that an injury can have far-reaching consequences, impacting athletes emotionally and socially as well. By considering the cultural and social context specific to Islamabad, the study will provide a more comprehensive understanding of the challenges and opportunities faced by injured players in this region.

One of the ultimate goals of this research is to inform and influence sports policies and programs in Islamabad. By shedding light on the real experiences of injured athletes, decision-makers can gain valuable insights into how to better support and safeguard players in the sports community. Implementing effective measures to improve athlete's well-being and safety can contribute to a healthier and more vibrant sports culture in Islamabad.

Furthermore, this research is not just about gathering data; it places great importance on the human aspect of sports injuries. Athletes are not just statistics; they are individuals with

unique experiences and needs. By giving a voice to the players and sharing their stories, this study aims to foster empathy and understanding for the challenges they face during the injury and recovery journey.

1.2 Objectives:

- To assess the quality of life after injury among hockey players.
- To determine the association between demographic characteristics and quality of life in hockey players after injury.

CHAPTER II: REVIEW OF LITERATURE

Athletes tend to have distinct lifestyles that include many commitments. Among these commitments are scheduled practices, mandatory meetings, injury rehabilitation, and competitions. Many programs also require extra conditioning in waiting rooms outside of practice time and team-oriented community service projects (Jain, 2002)

A study reported approximately 15,000 sports related injuries occur each year (Kerr et al., 2015).

Emotional and psychological reactions to athletic injury (e.g., anxiety, depression, fear, and lower self-esteem) lead to mood disturbances and can contribute to negative life-long consequences (Staufenbiel, Penninx, Spijker, Elzinga, & van Rossum, 2013).

Yadava and Awasthi (2016) conducted a study with an overview of psychological factors in coping with sports injury. Therefore, the researchers discovered social systems are essential while coping with injury (e.g., partners, coaches, teammates, and relatives) although high incidences of injuries are historically related to low social support (Yadava, 2016).

Injury is a major stressor for athletes and one that can pose significant challenges. Stress is an important antecedent to injuries and can play a role in the response to, rehabilitation and return to play after injury (Putukian, 2016).

Psychological and sociocultural factors have been raised as potential *risk factors* for injury. Stress consistently demonstrates a relationship with injury risk as well as the ability to rehabilitate from injury and return to sport (Wiese-Bjornstal, 2010).

To be successful in field sports such as soccer, rugby, football and hockey, players need to enhance some bio-motor abilities like endurance, strength, speed, and flexibility. Field hockey is a team sport that offers a total body workout that includes both aerobic and anaerobic components. The development of motor skills, speed, body balance, stamina, and strength are possible outcomes of effective instruction in the sport of field hockey. Hockey sport has some mental benefits along with physical gains. Playing it requires the ability to make a good decision. Health-related quality of life is often thought of as an individual's contentment with life and general feeling of personal wellbeing. Health-related quality of life includes several health components: the physical, psychosocial, and social aspects that are affected by the individual's experiences, expectations, beliefs, and perceptions.

Severe injuries can have a major effect on an athlete's overall HRQOL. A common definition for *severe injury* is any injury that resulted in a loss of more than 21 days of sport participation. Many athletes experience moderate to severe sport-related injuries during their careers that could compromise and reduce their future HRQOL (Cowie & Simon, 2019).

Field hockey is a sport that both males and females play. It requires players to do different physical activities like running fast, quickly starting and stopping, and changing directions.(Ronnie & Gal, 2015)

Studies also suggest that men have a higher rate of injury and that they experience severe injuries more often than women (Murtaugh, 2009).

When you compare hockey players to athletes in other field sports, they face a greater chance of getting hurt because they need to do a lot of physical movements like twisting, bending,

standing for a long time, moving their arms a lot, and making strong strategic moves with their bodies. All of this makes it more likely for their joints and muscles to get hurt. (Raza, 2022)

After sustaining injury, more female athletes reported negative experiences and lack of sympathy from their coaches than did male athletes. Female athletes have also reportedly used feedback to establish their competence level in physical activity. That is, reassurance from coaches through feedback provides an indication to female athletes that they are performing well. Losing feedback from coaches, perhaps as a result of injury, may leave a female athlete feeling isolated and unsupported. Similar findings among male athletes have not been reported. Differing relationships with coaches and variations in responses to feedback may be contributing factors to the effects of injury on HRQOL. (Tanabe, Snyder, Bay, Valovich McLeod, & Care, 2010)

When athletes get hurt, it not only affects their ability to do physical activities but can also make them feel bad emotionally. They might struggle to perform as well as they used to and might feel like they're not as important anymore. Even if their body gets better, their feelings might still be hurt. To help them get back to their best, it's important to understand their feelings. If we can help them feel less worried about their injury, they can do better in their sport. Another important thing is to identify and prevent things that make them stressed. This can really help them succeed in sports (K. Hazar, 2021).

Hamstring injuries and muscle strains were the most impactful types of injuries among athletes. When planning ways to prevent injuries in field hockey, it's important to focus on the types of injuries that cause the most problems. (Rees, McCarthy Persson, Delahunt, Boreham, & Blake, 2021).

Among the reasons for injuries, sports injuries come right after accidents at home and during leisure time accidents. The sport with the most injuries is basketball. Hockey comes next with 17 cases accounting for 21.3%. People who change their lifestyle because of pain or injury often have a close connection between how they live and the pain they feel. Athletes said that injuries affected their quality of life and made them feel less confident (Mir et al., 2021).

The impact of the environment seems to be a result of various complicated factors working together. In sports, this implies that having a helpful and encouraging group of people around, including family, friends, teammates, coaches, managers, fitness trainers, and psychologists, greatly affects how talent develops and how a player cope up with the situations that he encounters such as injury. (Asghar, 2011)

Most of the injuries happened while the players were practicing during a training session. To avoid injuries in hockey players, it's a good idea to wear all the protective gear. Also, the therapist on the field should always be watching and giving advice to prevent injuries and help performance. Hockey players should also make sure they get enough rest and follow a planned and smart training routine to stop injuries and get better at playing (Kim, Hwang, & Lee, 2017).

Operational Definitions

Quality of Life

Quality of life (QOL) is defined by the World Health Organization as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". The overall well-being of an individual, including their physical, mental, and social health, measured using the WHOQOL-BREF questionnaire. ("WHOQOL: Measuring Quality of Life," 30 July 2023)

Field hockey

Field hockey, also called **hockey**, outdoor game played by two opposing teams of 11 players each who use sticks curved at the striking end to hit a small, hard ball into their opponent's goal. It is called field hockey to distinguish it from a similar game played on ice. (Britannica, 2023)

Hockey player

An athlete who plays hockey. (Vocabulary.com, 2023)

Injury

Although field hockey is classified as a non-contact sport, acute injuries may result from contact with a stick, the ball, another player or the playing surface or goal cage (Medicine, 2023). For this study, an injury will be defined as any physical trauma sustained during hockey play that resulted in missed playing time. Common injuries include pulled muscles in the thigh and groin, blows to the thigh and sprained joints, especially in the knee, shoulder, and elbow (Play.Org, 2023).

Chapter III: METHODOLOGY

3.1 Setting

The study was carried out in Sports complex, Islamabad where hockey clubs gather to play the sport at Naseer Bunda Hockey Stadium.

3.2 Study design:

The study is quantitative in nature. A cross sectional design was conducted to assess the quality of life of hockey players post injury in Islamabad.

3.3 Duration of study:

The duration of this study was six months i.e., from March 2023 to August 2023.

3.4 Study Population:

The study population included in this study were hockey players playing for a club or at department/national level.

3.5 Sampling unit:

In this study Hockey clubs of Islamabad were the sampling unit and observational units were hockey players who got injured while playing hockey or their sport related activity such as training sessions, warmups, sprinting etc.

3.6 Sample Size:

The sample size was calculated by using OpenEpi software. By using prevalence 50% and margin of error 5%, the sample size was calculated 169.

Start	Enter	Results	Examples	Help
Sample Size for Frequency in a Population				
Population size(for finite population correction factor or fpc)(N): 300				
Hypothesized % frequency of outcome factor in the population (p): 50%+/-5				
Confidence limits as % of 100(absolute +/- %)(d): 5%				
Design effect (for cluster surveys-DEFF): 1				
Sample Size(n) for Various Confidence Levels				
ConfidenceLevel(%)		Sample Size		
95%		169		
80%		107		
90%		143		
97%		184		
99%		207		
99.9%		236		
99.99%		251		
Equation				
Sample size $n = [DEFF * Np(1-p)] / [(d^2 / Z^2_{1-\alpha/2} * (N-1) + p*(1-p)]$				
Results from OpenEpi, Version 3, open source calculator--SSPropor				
Print from the browser with ctrl-P				
or select text to copy and paste to other programs.				

Figure 1: Sample Size

3.7 Sampling Technique

Non-Probability census sampling was done for collecting data. Census sampling, also known as universal sampling or complete enumeration, is a research sampling technique where every single individual or element in the entire population of interest is included in the study. In other words, there is an attempt to collect data from every member of the population, leaving no one out. Unlike other sampling methods that select a subset of the population, census sampling aims to provide a complete representation of the entire population.

Census sampling is often used when the population size is relatively small or manageable, making it feasible to include every individual. It ensures that every member of the population has an equal chance of being included in the study, and the results are considered highly accurate and representative of the entire population.

A list of major hockey clubs of Islamabad was developed that take part in the tournaments frequently. Eleven hockey clubs were the part of the list including one club of female hockey players. All the members present on the field were included considering the inclusion and exclusion criteria.

3.8 Sample selection:

The sample was selected according to following inclusion and exclusion criteria:

3.9 Inclusion criteria:

- Male and female hockey players
- Aged from 20 to 40 years.
- Currently associated with a hockey club based in Islamabad.
- Players experienced injury while playing hockey that kept them away from taking part in any game for some time.

3.10 Exclusion criteria:

- Hockey players less than 20 years and more than 40 years of age.
- Hockey players who were unable to provide informed consent due to language barriers, or other reasons may be excluded.
- Hockey players with other injuries that may interfere with the study's results, such as injuries unrelated to hockey, were excluded.

3.11 Data collection procedure:

Data collection has been started after getting ethical approval from institutional Review Board (IRB) committee of Al-Shifa school of public health, Al-Shifa trust eye hospital, Rawalpindi. The IRB letter was used to take permission from the coaches of the team. Individual verbal consent was obtained from hockey players after giving an introduction about research and researcher for building rapport. Data was collected from the players who were fulfilling the inclusion criteria and those who agreed to participate. Following the same way, a total sample of 169 was completed.

Self-administered structured questionnaire was given to each participant. Participants were asked to complete standardized questionnaires that measure quality of life, such as the Short Form 36 (SF-36) And the World Health Organization Quality of Life (WHOQOL)

questionnaire. The questionnaire was comprised of two sections. Section A was comprised of demographic questions while section B was containing the questions related to the overall perceived health of the hockey players.

3.12 Data Collection Tool

Data collection was done with the help of a Self-administered quantitative questionnaire to assess the quality of life after injury. Original questionnaire was in English that was translated in Urdu, HRQOL-BREF was standardized and taken from the authentic website of WHO. A study provided strong exploratory evidence for the reliability and validity of the WHOQOL-BREF for use in Pakistan (Saqib Lodhi et al., 2017). While the appropriate and comprehensive language was used for SF-36 form translation.

3.12.1 HRQOL-BREF:

The WHOQOL-BREF is one of the best-known instruments that has been developed for cross-cultural comparisons of quality of life and is available in more than 40 languages. The WHOQOL-BREF is a 26-item instrument consisting of four domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items); it also contains QOL and general health items. Each individual item of the WHOQOL-BREF is scored from 1 to 5 on a response scale, which is stipulated as a five-point ordinal scale. The scores are then transformed linearly to a 0–100-scale. (Vahedi, 2010)

3.12.2 SF-36:

The SF-36, also known as the Short Form 36 Health Survey Questionnaire, is a widely utilized self-report tool for assessing health-related quality of life. Comprising 36 items, it encompasses eight subscales that measure various dimensions of well-being: physical functioning, role-

physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health. These subscales provide insights into an individual's physical and mental health status, while two component scores, physical and mental, synthesize the overall assessment. Additionally, the questionnaire includes an item to gauge perceived health changes over the past year. With more than 16,000 articles published up until 2011, the SF-36 has proven its significance in healthcare research and practice, offering a comprehensive view of individuals' health and functioning (Hooker, 2013).

3.12.3 Study Variables:

i. Independent Variable:

- Demographic variables: Age, gender, socioeconomic status, level of education, marital status, and employment status.
- Injury-related variables: Type of injury, severity of injury

ii. Dependent Variable:

- Quality of Life: Physical, psychological, and social domains of quality of life

3.13 Pilot Testing

Pilot Testing was done on 18 participants of the study to assess the acceptability, reliability, and validity. After analyzing the response minor changes were made in the questionnaire and made it ready for data collection. The questionnaire was revised based on the results of the pilot study.

3.13.1 Validity

The WHOQOL-BREF and SF-36 have already been validated in various studies. Both are approved and validated instruments.

3.13.2 Reliability

To ensure the reliability of the questionnaire, a pilot study was conducted on a small sample of 18 hockey players, and the internal consistency of the scales was assessed using Cronbach's alpha.

Reliability of the scales were checked after entering the data into SPSS. Both scales showed good internal consistency. The value of Cronbach's alpha for WHOQOL-BREF was 0.953 while the value of Cronbach's alpha for SF-36 was 0.831.

3.14 Data Management

Code book was generated to for all the variables in the questionnaire and data was entered and recorded into statistical package for social sciences (SPSS) version 26.0. Data was rechecked for any error, discrepancies, or completeness by spot checking method. Data was stored in a separate storage device to avoid any loss in future and the hard copies were discarded soon after the data entry.

3.15 Data Analysis

Data was analyzed in SPSS version 26.0. Reliability and quality of data was cross checked by using range and frequency tables to find out the missing values if any. After that the data was arranged according to the requirement for analysis. All the outcome variables of WHOQOL-BREF and SF-36 were computed and then summarized into different categories for further analysis.

3.16 Descriptive Statistics

The data underwent a comprehensive analysis conducted in three distinct phases. Initially, a descriptive examination was performed on sociodemographic variables comprised of gender, age, marital status, educational status, employment status, monthly income, level of playing, living arrangement, playing hockey as, health insurance, years of playing, rating of injury and the treatment method. These sociodemographic factors were presented as frequencies and percentages, visually represented through tables and charts made to each variable's nature.

Moving to the second phase, a descriptive analysis was executed for the outcome variables of the WHOQOL-BREF and SF-36. The complete set of 26 and 36 items along with their corresponding response options were tabulated in terms of frequencies and percentages.

The third step involved the application of the chi-square test of association to assess the relationships between categorical independent variables. Prior to conducting the test, all assumptions required for the chi-square test were carefully met, notably ensuring that the cell counts exceeded a minimum of 5. Probability values ≤ 0.05 were considered statistically significant. (Gard et al., 2020)

3.17 ETHICAL CONSIDERATION:

- The synopsis was approved by the institutional review board (IRB) of Al Shifa school of public health before data collection.
- Informed consent was obtained from each participant before participation in the study.
- Participants were assured of confidentiality.
- Informed consent was taken from the participants of the study.
- Risk-benefit ratio for the study participants

3.17.1 Risks:

While the research survey poses minimal risk there is a risk of loss of confidentiality to participants. There were no anticipated risks in this study.

3.17.2 Benefits:

- There were no direct benefits associated with participation in this study.
- The study may be useful for the policymakers, sports authorities, and coaches to make informed decisions about player safety and the overall improvement of the game.
- The study will help in identifying the preventive measures and rehabilitation strategies for injuries in hockey players.

CHAPTER IV: RESULTS

4.1 Descriptives

In this study a total of one hundred and seventy hockey players were included. Eighty eight percent players were male (n= 150). Total twenty players were female. Most of the players were young, between 20 to 25 years of age (n=79, 46.5%). The majority of the players were university students or graduates (n=85, 50.0%). Single respondents were fifty six percent (n=96). Mostly players were living with their family (n=148, 87.1%) instead of a hostel. One hundred and twenty-nine (75.9%) players were employed. Eighty-seven players (51.2%) were playing hockey for clubs.

Demographics characters are shown in Table 1:

Table 1: Demographic characters of players

Sr. No	Variable	N	%
1.	Gender		
	• Male	150	88.2
	• Female	20	11.8
2.	Age		
	• 20-25 years	79	46.5
	• 26-30 years	43	25.3
	• 31-35 years	29	17.1
	• 35-40 years	19	11.2
3.	Education Level		
	• Uneducated	14	8.2
	• Primary	11	6.5
	• Matric	28	16.5
	• High school	32	18.8
	• University	85	50.0

4. Marital Status			
• Single	96		56.5
• Married	69		40.6
• Widowed	2		1.2
• Divorced	3		1.8
5. Living Arrangement			
• With Family	148		87.1
• In a hostel	22		12.9
6. Employment Status			
• Employed	129		75.9
• Unemployed	39		32.9
7. Monthly Income			
• 15,000-30,000	35		20.6
• 31,000- 50,000	51		30.0
• 51,000-80,000	32		18.8
• more than 80,000	30		17.6
8. Level of playing			
• Club	87		51.2
• Department	37		21.2
• Both	37		21.8
9. Playing Hockey as a:			
• Hobby	88		51.8
• Profession	72		42.4
10. Health Insurance			
• Yes	56		32.9
• No	114		67.1

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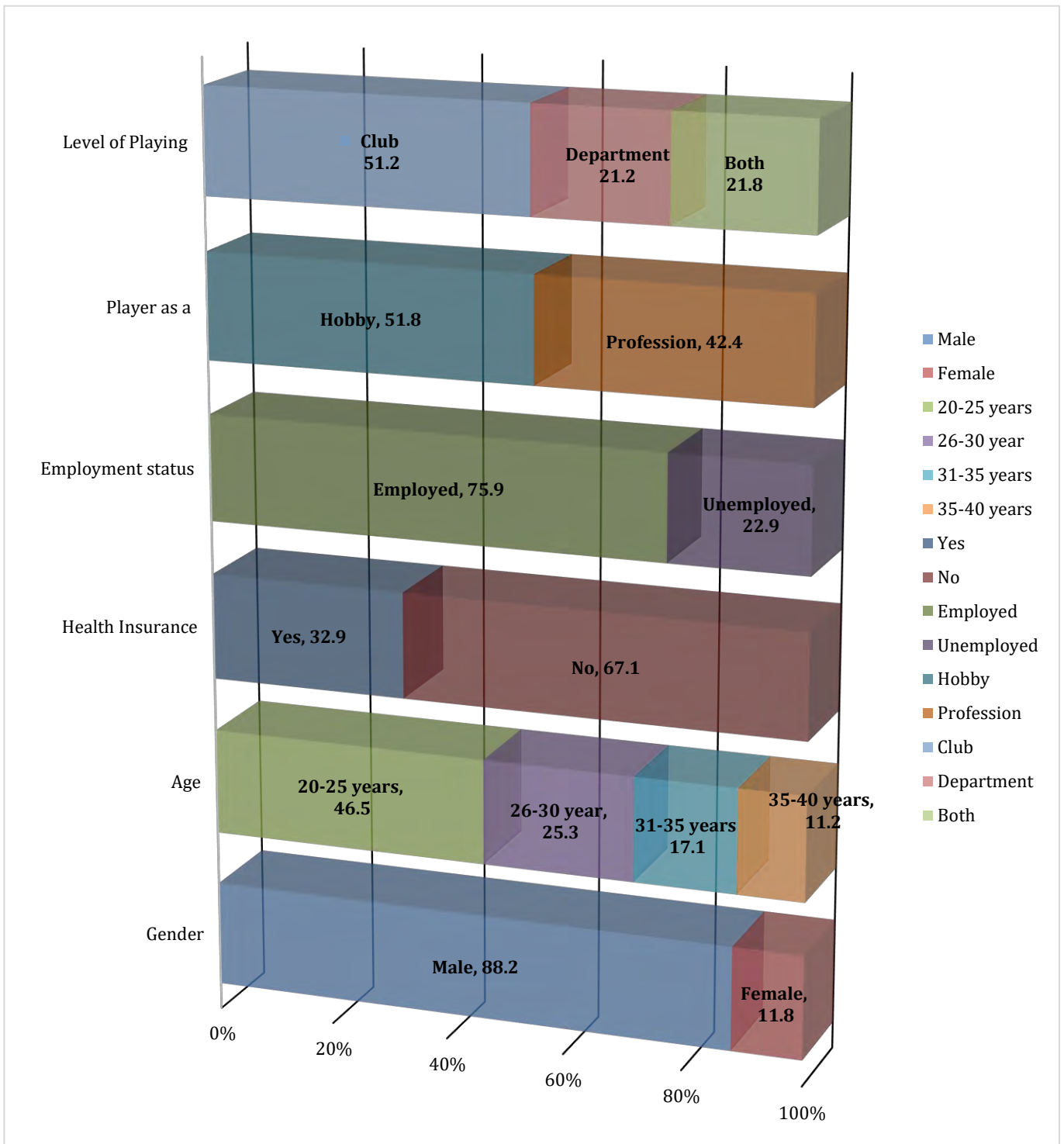


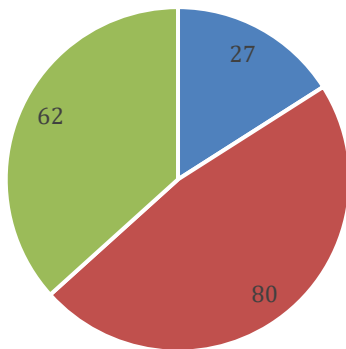
Figure 2: Graph representation of demographic characteristics.

Injury related characters are shown in Table 2:

Table 2: injury related characters:

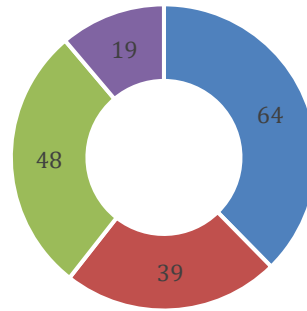
Sr. No	Variable	N	%
11.	Years playing hockey.		
	• 0-5 years	27	15.9
	• 5-10 years	80	47.1
	• more than 10 years	62	36.5
12.	Rating of injury		
	• Mild	59	34.7
	• Moderate	72	42.4
	• Severe	39	22.9
13.	Injury inhibits playing.		
	• Yes	106	62.4
	• No	64	37.6
14.	Treatment:		
	• Home remedies	10	5.9
	• Medication	39	22.9
	• Physiotherapy	48	28.2
	• Surgery	19	11.2
	• None	16	9.4
15.	Social Support during injury		
	• Yes	139	81.8
	• No	31	18.2

Years playing hockey



- 0-5 years
- 6-10 years
- more than 10 years

Treatment method



- Bed rest and home remedies
- Medication
- Physiotherapy
- Surgery

Injury related characters

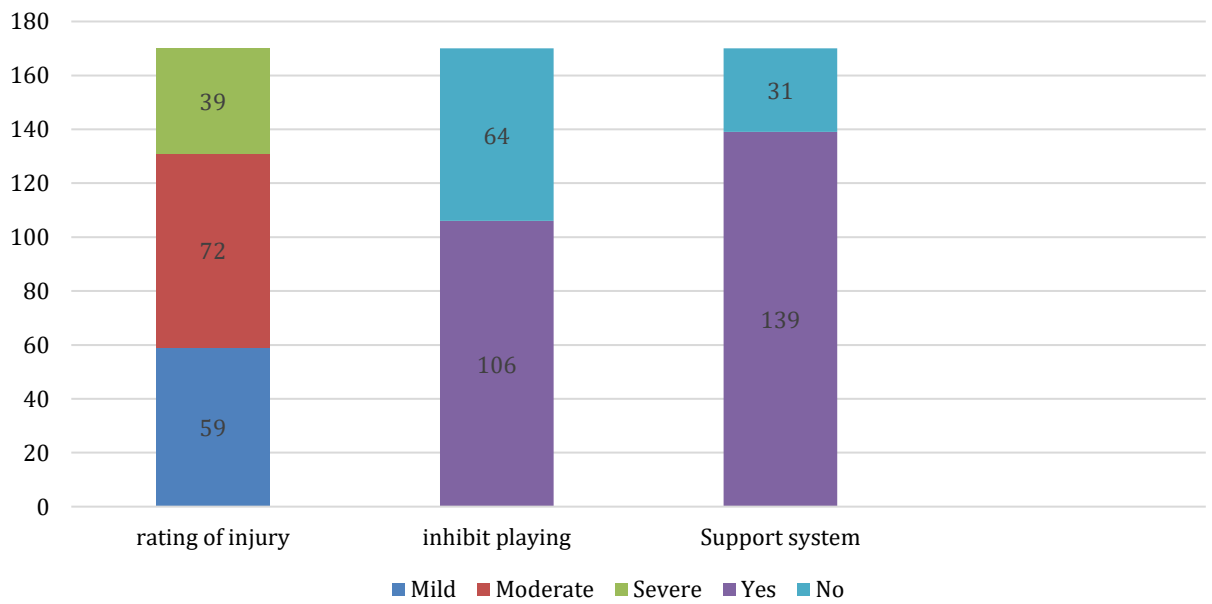


Figure 3: Graphs representing some injury related characteristics.

4.2 Descriptives for SF-36:

The SF-36 (Short Form 36) is a widely used questionnaire that assesses health-related quality of life. It includes 36 items that cover eight health domains: **Physical Functioning, Role Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role Emotional, and Mental Health**. These domains measure aspects such as physical abilities, pain, emotional well-being, and social interactions. Scores for each domain range from 0 to 100, with higher scores indicating better health. The SF-36 provides insights into an individual's overall health status and how health conditions impact their daily life. It's used in research and clinical settings to assess health outcomes and quality of life across various populations and health conditions. Frequencies for current research are shown in below table:

Table 3: Frequencies for SF-36

Sr. No	Variable	N	%
1.	In general, would you say your health is:		
	Excellent		
	Very Good		
	Good	77	45.3
	Fair	54	31.8
	Poor	22	12.9
		10	5.9
		6	3.5
	2.	After injury how would you rate your health in general now?	
	<ul style="list-style-type: none"> • Much better now than after injury • Somewhat better than after injury • About the same • Somewhat worse now than after injury • Much worse now than after injury 	84 35 34 10 7	49.4 20.6 20.0 5.9 4.1
3.	Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports.		
		58	34.1
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	63 49	37.1 28.8
	4.	Moderate activities, such as moving a	

	table, pushing a vacuum cleaner, bowling, or playing golf.		
	<ul style="list-style-type: none"> • Yes, limited a lot. • Yes, limited a little • No, not limited at all 	34 62 74	20.0 36.5 30.5
5.	Lifting or carrying groceries		
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	51 36 83	30.0 21.2 48.8
6.	Climbing several flights of stairs		
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	39 59 72	22.9 34.7 42.4
7.	Climbing one flight of stairs		
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	37 47 86	21.8 27.6 50.6
8.	Bending, kneeling, or stooping		
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	41 56 73	24.1 32.9 42.9
9.	Walking more than a mile		
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	43 49 78	25.3 28.8 45.9
10.	Walking several blocks		
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	34 51 85	20.0 30.0 50.0
11.	Walking one block		
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	28 54 88	16.5 31.8 51.8
12.	Bathing or dressing yourself		
	<ul style="list-style-type: none"> • Yes, limited a lot • Yes, limited a little • No, not limited at all 	38 35 97	22.4 20.6 57.1
13.	Cut down the amount of time you spent on work or other activities.		
	<ul style="list-style-type: none"> • Yes • No 	70 100	41.2 58.8

14.	Accomplished less than you would like. • Yes • No	49 121	28.8 71.2
15.	Were limited in the kind of work or other activities • Yes • No	51 119	30.0 70.0
16.	Had difficulty performing the work or other activities (for example, it took extra effort) • Yes • No	58 112	34.1 65.9
17.	Cut down the amount of time you spent on work or other activities • Yes • No	71 98	41.8 57.6
18.	Accomplished less than you would like • Yes • No	55 114	32.4 67.1
19.	Didn't do work or other activities as carefully as usual • Yes • No	55 114	32.4 67.1
20.	After injury, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups? Not at all Slightly Moderately Quite a bit Extremely	94 44 11 19 2	55.3 25.9 6.5 11.2 1.2
21.	How much bodily pain have you had after injury? • None • Very mild • Mild • Moderate • Severe	44 58 25 21 15	25.9 34.1 14.7 12.4 8.8

	<ul style="list-style-type: none"> • Very severe 	7	4.1
22.	<p>After injury, how much did pain interfere with your normal work (including both work outside the home and housework)?</p> <p>Not at all A little bit Moderately Quite a bit Extremely</p>	60 57 22 26 5	35.3 33.5 12.9 15.3 2.9
23.	<p>Did you feel full of pep?</p> <ul style="list-style-type: none"> • All of the time • Most of the time • A good bit of the time • Some of the time • A little of the time • None of the time 	66 39 37 11 8 9	38.8 22.9 21.8 6.5 4.7 4.3
24.	<p>Have you been a very nervous person?</p> <ul style="list-style-type: none"> • All of the time • Most of the time • A good bit of the time • Some of the time • A little of the time • None of the time 	18 29 18 26 42 37	10.6 17.1 10.0 15.3 24.7 21.8
25.	<p>Have you felt so down in the dumps that nothing could cheer you up?</p> <ul style="list-style-type: none"> • All of the time • Most of the time • A good bit of the time • Some of the time • A little of the time • None of the time 	11 24 32 21 18 64	6.5 14.1 18.8 12.4 10.6 37.6
26.	<p>Have you felt calm and peaceful?</p> <ul style="list-style-type: none"> • All of the time • Most of the time • A good bit of the time • Some of the time • A little of the time • None of the time 	42 51 29 27 6 15	24.7 30.0 17.1 15.9 3.5 8.8
27.	<p>Did you have a lot of energy?</p> <ul style="list-style-type: none"> • All of the time • Most of the time 	49 44	28.8 25.9

	<ul style="list-style-type: none"> • A good bit of the time • Some of the time • A little of the time • None of the time 	27 23 18 9	15.9 3.5 10.6 5.3
28.	Have you felt downhearted and blue? <ul style="list-style-type: none"> • All of the time • Most of the time • A good bit of the time • Some of the time • A little of the time • None of the time 	10 22 37 30 28 25	5.9 12.9 21.8 17.6 16.5 25.3
29.	Did you feel worn out? <ul style="list-style-type: none"> • All of the time • Most of the time • A good bit of the time • Some of the time • A little of the time • None of the time 	16 19 24 46 40 25	9.4 11.2 14.1 27.1 23.5 14.7
30.	Have you been a happy person? <ul style="list-style-type: none"> • All of the time • Most of the time • A good bit of the time • Some of the time • A little of the time • None of the time 	53 56 19 21 09 12	31.2 10.0 14.1 21.2 27.1 21.8
31.	Did you feel tired? <ul style="list-style-type: none"> • All of the time • Most of the time • A good bit of the time • Some of the time • A little of the time • None of the time 	10 17 24 36 46	5.9 10.0 14.1 21.2 27.1
32.	After injury, how much of the time has your physical health or emotional problems interfered with your social activities? <ul style="list-style-type: none"> • All of the time • Most of the time • Some of the time • A little of the time • None of the time 	14 18 42 37 59	8.2 10.6 24.7 21.8 34.7

33.	I seem to get sick a little easier than other people.		
	• Definitely true	28	16.5
	• Mostly true	24	14.1
	• Don't know.	25	14.7
	• Mostly false	43	25.3
	• Definitely false	50	29.4
34.	I am as healthy as anybody I know		
	• Definitely true	48	28.2
	• Mostly true	66	38.8
	• Don't know	36	21.2
	• Mostly false	11	6.5
	• Definitely false	9	5.3
35.	I expect my health to get worse		
	• Definitely true	10	5.9
	• Mostly true	18	10.6
	• Don't know	12	24.7
	• Mostly false	36	21.2
	• Definitely false	64	37.6
36.	My health is excellent.		
	• Definitely true	64	37.6
	• Mostly true	59	34.7
	• Don't know.	13	7.6
	• Mostly false	22	12.9
	• Definitely false	12	7.1

4.3 Descriptives for WHOQOL-BREF:

Table 4 provides descriptive insights from the quality-of-life assessment among hockey players, using a Likert scale. Notably, 37.1% rated their quality of life as "Good," and 34.1% as "Very good." Satisfaction with health was reported by 40.6%, while 30.0% expressed "Very satisfied." For physical pain's impact, responses varied, with 30.0% experiencing a "Moderate

amount. “Concerning the need for medical treatment, 37.6% indicated "A little." Enjoyment of life was high at 45.9%, as was the sense of meaningfulness at 34.1%. Concentration ability was positive, with 28.8% indicating "Very much." Feeling safe daily was reported by 41.8%. Access to necessary information, leisure opportunities, and mobility saw satisfaction, at 34.1%, 35.9%, and 42.9% respectively. Sleep satisfaction varied at 36.5%, and capacity for daily activities and work ranged from 41.2% to 39.4%.

Personal satisfaction levels, including oneself, relationships, and sex life, showed positive trends, ranging from 37.7% to 38.8%. Perception of friend support varied, at 32.4%. Satisfaction with living conditions, health services access, and transport ranged from 31.8% to 35.9%, reflecting diverse perspectives. Lastly, 33.6% reported experiencing negative feelings "Quite often."

Table 4: Frequencies for WHOQOL-BREF:

Sr. No	Variable	N	%
1.	How would you rate your quality of life?		
	• Very poor	22	12.9
	• Poor	13	7.6
	• Neither poor nor good	14	8.2
	• Good	63	37.1
	• Very good	58	34.1
2.	How satisfied are you with your health?		
	• Very dissatisfied	12	7.1
	• Dissatisfied	16	9.4
	• Neither satisfied nor dissatisfied	22	12.9
	• Satisfied	69	40.6
	• Very satisfied	51	30.0
3.	To what extent do you feel that physical pain prevents you from doing what you need to do?		

	<ul style="list-style-type: none"> • Not at all • A little • A moderate amount • Very much • An extreme amount 	42 45 51 24 8	24.7 26.5 30.0 14.1 4.7
4.	<p>How much do you need any medical treatment to function in your daily life?</p> <ul style="list-style-type: none"> • Not at all • A little • A moderate amount • Very much • An extreme amount 	42 64 24 31 09	24.7 37.6 14.1 18.2 5.3
5.	<p>How much do you enjoy life?</p> <ul style="list-style-type: none"> • Not at all • A little • A moderate amount • Very much • An extreme amount 	7 15 23 78 47	4.1 8.8 13.5 45.9 27.6
6.	<p>To what extent do you feel your life to be meaningful?</p> <ul style="list-style-type: none"> • Not at all • A little • A moderate amount • Very much • An extreme amount 	25 23 23 58 41	14.7 13.5 13.5 34.1 24.1
7.	<p>How well are you able to concentrate?</p> <ul style="list-style-type: none"> • Not at all • A little • A moderate amount • Very much • Extremely 	26 24 40 49 31	15.3 14.1 23.5 28.8 18.2
8.	<p>How safe do you feel in your daily life?</p> <ul style="list-style-type: none"> • Not at all • A little • A moderate amount • Very much • Extremely 	7 21 42 71 29	4.1 12.4 24.7 41.8 17.1
9.	<p>How healthy is your physical environment?</p> <ul style="list-style-type: none"> • Not at all • A little 	09 31	5.3 18.2

	<ul style="list-style-type: none"> • A moderate amount • Very much • Extremely 	32 59 39	18.8 34.7 22.7
10.	Do you have enough energy for everyday life?		
	Not at all	22	12.9
	A little	21	12.4
	Moderately	22	12.9
	Mostly	64	37.6
	Completely	41	24.1
11.	Are you able to accept your bodily appearance?		
	Not at all	10	5.9
	A little	19	11.2
	Moderately	26	15.3
	Mostly	52	30.6
	Completely	63	37.1
12.	Have you enough money to meet your needs?		
	Not at all		
	A little	37	21.8
	Moderately	10	5.9
	Mostly	25	14.7
	Completely	44	25.9
		54	31.8
13.	How available to you is the information that you need in your day-to-day life?		
	Not at all		
	A little	12	7.1
	Moderately	27	15.9
	Mostly	33	19.4
	Completely	58	34.1
		40	23.5
14.	To what extent do you have the opportunity for leisure activities?		
	Not at all	15	8.8
	A little	20	11.8
	Moderately	26	15.3
	Mostly	48	28.2
	Completely	61	35.9

15.	How well are you able to get around? Very poor Poor Neither poor nor good Good Very good	 14 14 30 39 73	 8.2 8.2 17.6 22.9 42.9
16.	How satisfied are you with your sleep? Very dissatisfied Dissatisfied Neither satisfied nor dissatisfied Satisfied Very satisfied	 18 20 28 62 42	 10.6 11.8 16.5 36.5 24.7
17.	How satisfied are you with your ability to perform your daily living activities? Very dissatisfied Dissatisfied Neither satisfied nor dissatisfied Satisfied Very satisfied	 04 30 21 70 45	 2.4 17.6 12.4 41.2 26.5
18.	How satisfied are you with your capacity for work? Very dissatisfied Dissatisfied Neither satisfied nor dissatisfied Satisfied Very satisfied	 06 13 21 67 63	 3.5 7.6 12.4 39.4 37.1
19.	How satisfied are you with yourself? Very dissatisfied Dissatisfied Neither satisfied nor dissatisfied Satisfied Very satisfied	 11 19 10 55 75	 6.5 11.2 5.9 32.4 44.1
20.	How satisfied are you with your personal relationships? Very dissatisfied Dissatisfied	 16	 9.4

	Neither satisfied nor dissatisfied	16	9.4
	Satisfied	22	12.9
	Very satisfied	52	30.6
		64	37.7
21.	How satisfied are you with your sex life?		
	Very dissatisfied		
	Dissatisfied		
	Neither satisfied nor dissatisfied	04	2.4
	Satisfied	21	12.4
	Very satisfied	27	15.9
		52	30.6
		66	38.8
22.	How satisfied are you with the support you get from your friends?		
	Very dissatisfied		
	Dissatisfied	10	5.9
	Neither satisfied nor dissatisfied	27	15.9
	Satisfied	26	15.3
	Very satisfied	52	30.6
		55	32.4
23.	How satisfied are you with the conditions of your living place?		
	Very dissatisfied		
	Dissatisfied	11	6.5
	Neither satisfied nor dissatisfied	14	8.21
	Satisfied	31	8.2
	Very satisfied	61	35.9
		63	31.2
24.	How satisfied are you with your access to health services?		
	Very dissatisfied	6	3.5
	Dissatisfied	21	12.4
	Neither satisfied nor dissatisfied	33	19.4
	Satisfied	53	31.2
	Very satisfied	57	33.5
25.	How satisfied are you with your transport?		
	Very dissatisfied		
	Dissatisfied		
	Neither satisfied nor dissatisfied	15	8.8
	Satisfied	22	12.9
	Very satisfied	27	15.9
		52	30.6
		54	31.8

26.	How often do you have negative feelings such as bluemoon, despair, anxiety, depression?		
	Never	11	6.5
	Seldom	15	8.8
	Quite often	43	25.3
	Very often	44	25.9
	Always	57	33.6

4.4 Inferential Demographics of WHOQOL-BREF:

4.4.1 Physical QoL

The Chi square test of association was run to check the association between demographic variable and computed scores of physical domains of quality-of-life scale. Result of Pearsons chi square showed significant association of **education level** $\chi^2 = 9.38$ (4), P-value = .02; **Income** $\chi^2 = 11.72$ (3), P-value $\leq .05$, **playing hockey as** $\chi^2 = 5.944$ (2), P-value $\leq .05$, **Treatment** $\chi^2 = 12.3$ (3), P-value = .00 and **social support** $\chi^2 = 5.431$ (1), P-value = .02

Table 5: Association of demographics with physical domain of QOL.

Variables	Physical Quality of Life		Chi-square (df)	P-value
	Low Physical QoL = n (%)	High Physical QoL = n (%)		
1. Gender				
• Male	70 (41.2)	80 (47.1)	2.37 (1)	.12
• Female	13 (7.6)	07 (4.1)		
2. Age				
• 20-25 years	41 (24.1)	38 (22.4)	1.99 (3)	.57
• 26-30 years	17 (10.0)	26 (15.3)		
• 31-35 years	15 (8.8)	14 (8.8)		
• 35-40 years	10 (5.9)	09 (5.3)		
3. Education Level				
• Primary	19 (11.2)	6 (5.3)	9.38 (4)	.02
• Matric	11 (6.5)	3 (1.8)		
• High school	16 (9.4)	17 (10.0)		

• University	37 (21.8)	48 (28.2)		
4. Marital status				
• Single	47 (27.6)	49(28.8)		
• Married	32 (18.8)	37 (21.8)	2.64 (1)	.45
5. Living Arrangement				
• With Family	71 (41.8)	71 (45.3)		
• In a hostel	12 (7.1)	10 (5.9)	.33 (1)	.56
6. Employment Status				
• Employed	59 (34.9)	70 (41.4)		
• Unemployed	23 (13.6)	16 (9.5)	3.04 (2)	.21
7. Monthly Income				
• 15,000-30,000	26 (17.6)	9 (6.1)		
• 31,000- 50,000	22 (14.9)	29 (19.6)		
• 51,000-80,000	12 (8.1)	20 (13.5)		
• more than 80,000	13 (8.8)	17 (11.5)	11.7 (3)	.00
8. Level of playing				
• Club	45 (28.0)	42 (26.1)		
• Department	17 (10.6)	20 (12.4)		
• Both	18 (11.2)	19 (11.8)	.36 (2)	.83
9. Playing Hockey as a:				
• Hobby	51 (31.7)	37 (23.0)		
• Profession	29 (18.0)	43 (26.7)	5.94 (2)	.05
10. Health Insurance				
• Yes	32 (18.8)	24 (14.1)		
• No	51 (30.0)	63 (37.1)	2.31 (1)	.12
11. Years playing hockey				
• 0-5 years	15 (8.8)	12 (7.1)		
• 5-10 years	39 (22.9)	41 (24.1)		
• more than 10 years	29 (17.1)	33 (19.4)	1.54 (2)	.67
12. Rating of injury				
Mild	32 (18.8)	27 (15.9)		
Moderate	34 (20.0)	38 (22.4)		
Severe	17 (10.0)	22 (12.9)	1.19 (2)	.55
13. Injury inhibits playing				
• Yes	46 (27.1)	60 (35.3)		
• No	37 (21.8)	27 (15.9)	3.31 (1)	.06
14. Treatment				
Home remedies and Bed Rest	41 (24.1)	23 (13.5)	12.1 (3)	.00

Medication	12 (7.1)	27 (15.9)		
Physiotherapy	20 (11.8)	28 (16.5)		
Surgery	12 (7.1)	5 (2.4)		
15. Social Support				
• Yes	62 (36.5)	77 (45.3)		
• No	21 (12.4)	10 (5.9)	5.43 (1)	.02

4.4.2 Psychological QoL:

Chi square test of association was run to check the association between demographic variable and computed scores of psychological domain of quality of life scale. Result of Pearsons chi square showed significant association of **Education** $\chi^2 = 9.14$ (3), P-value = .02 ; **Employment status** $\chi^2 = 6.502$ (2), P-value $\leq .05$, **Monthly income** $\chi^2 = 8.47$ (3), P-value = .03, **stop playing hockey** $\chi^2 = 8.362$ (1), P-value = .004 and **Treatment method** $\chi^2 = 16.3$ (3), P-value = .00

Table 6: Association of demographics with psychological QoL:

Variables	Psychological Quality of Life		Chi-square (df)	P-value
	Low Psychological Qol = n(%)	High Psychological Qol= n(%)		
1. Gender				
• Male	78 (45.9)	72 (42.4)	.45 (1)	.50
• Female	12 (7.1)	8 (4.7)		
2. Age				
• 20-25 years	45 (26.5)	34 (20.0)	2.78 (3)	.42
• 26-30 years	20 (11.8)	23 (13.5)		
• 31-35 years	13 (7.6)	16 (9.4)		
• 35-40 years	12 (7.1)	7 (4.1)		
3. Education Level				
• Primary	20 (11.8)	5 (2.9)	9.14 (3)	.02
• Matric	14 (8.2)	14 (8.2)		
• High school	17 (10.0)	15 (8.8)		
• University	39 (22.9)	46 (27.1)		
4. Marital status				
• Single	56 (32.9)	45 (26.5)	.62 (1)	.42
• Married	34 (20.6)	35 (20.0)		
5. Living Arrangement				

• With Family	78 (45.9)	70 (41.2)		
• In a hostel	12 (7.1)	10 (5.9)		
6. Employment Status				
• Employed	62 (36.7)	67 (39.6)	6.50 (2)	.03
• Unemployed	27 (16.0)	12 (7.1)		
7. Monthly Income				
• 15,000-30,000	23 (15.5)	12 (8.1)	8.47 (3)	.03
• 31,000- 50,000	30 (20.3)	21 (14.2)		
• 51,000-80,000	11 (7.4)	21 (14.2)		
• more than 80,000	13 (8.8)	17 (11.5)		
8. Level of playing				
• Club	49 (30.4)	38 (23.6)	1.16 (2)	.55
• Department	19 (11.8)	18 (11.2)		
• Both	17 (10.6)	20 (12.4)		
9. Playing Hockey as a:				
• Hobby	49 (30.4)	39 (24.2)	1.63 (2)	.44
• Profession	36 (22.4)	36 (22.4)		
10. Health Insurance				
• Yes	35 (20.6)	21 (12.4)	3.06	.08
• No	55 (32.4)	59 (34.7)		
11. Years playing hockey				
• 0-5 years	14 (8.2)	13 (7.6)	1.53 (3)	.67
• 5-10 years	41 (24.1)	39 (22.9)		
• more than 10 years	35 (20.6)	27 (15.9)		
12. Rating of injury				
Mild	33 (19.4)	26 (15.3)	.49 (2)	.78
Moderate	38 (22.4)	34 (20.0)		
Severe	19 (11.2)	20 (11.8)		
13. Injury inhibits playing				
• Yes	47 (27.6)	59 (34.7)	8.36 (1)	.00
• No	43 (25.3)	21 (12.4)		
14. Treatment				
• Home remedies and bedrest	44 (25.9)	20 (11.8)	16.3 (3)	.00
• Medication	12 (7.1)	27 (15.9)		
• Physiotherapy	27 (15.9)	21 (12.4)		
• Surgery	7 (4.1)	12 (7.1)		
15. Social Support				
• Yes	73 (42.9)	66 (38.8)	.055 (1)	.81
• No	17 (10.0)	14 (8.2)		

4.4.3 Social QoL

Chi square test of association was run to check the association between demographics variable and computed scores of social domains of quality-of-life scale. Result of Pearsons chi square showed significant association of **Monthly income** $\chi^2 = 8.122$ (3), P-value = .04; and **Treatment** $\chi^2 = 8.00$ (3), P-value = .04.

Table 7: Association of demographics with social domain of QOL.

Variables	Social Quality of Life		Chi-square (df)	P-value
	Low Social QoL = n (%)	High Social QoL = n (%)		
1. Gender				
• Male	90 (52.9)	60 (35.3)	.74 (1)	.38
• Female	14 (8.2)	6 (3.5)		
2. Age				
• 20-25 years	47 (27.6)	32 (18.8)	1.03 (3)	.79
• 26-30 years	25 (14.7)	18 (10.6)		
• 31-35 years	20 (11.8)	9 (5.3)		
• 35-40 years	12 (7.1)	7 (4.1)		
3. Education Level				
• Primary	20 (11.8)	5 (2.9)	5.29 (3)	.15
• Matric	14 (8.2)	14 (8.2)		
• High school 19 (11.2)		13 (7.6)		
• University	51 (30.0)	34 (20.0)		
4. Marital status				
• Single	64 (37.6)	37 (21.8)	.50 (1)	.47
• Married	40 (23.5)	29 (17.1)		
5. Living Arrangement				
• With Family	91 (53.5)	57 (33.5)	.04 (1)	.83
• In a hostel	13 (7.6)	9 (5.3)		

6. Employment Status				
• Employed	76 (45.0)	53 (31.4)		
• Unemployed	27 (16.0)	12 (7.1)	2.90 (2)	.23
7. Monthly Income				
• 15,000-30,000	27 (18.2)	8 (5.4)		
• 31,000- 50,000	32 (21.6)	19 (12.8)		
• 51,000-80,000	18 (12.2)	14 (9.5)		
• more than 80,000	13 (8.8)	17 (11.5)	8.12 (3)	.04
8. Level of playing				
• Club	59 (36.6)	28 (17.4)		
• Department	22 (13.7)	15 (9.3)		
• Both	19 (11.8)	18 (11.2)	3.13 (2)	.20
9. Playing Hockey as a:				
• Hobby	60 (37.3)	28 (17.4)		
• Profession	39 (24.2)	33 (20.5)	3.91 (2)	.14
10. Health Insurance				
• Yes	35 (20.6)	21 (12.4)		
• No	69 (40.6)	45 (26.5)	.06 (1)	.80
11. Years playing hockey				
• 0-5 years	17 (10.0)	10 (5.9)		
• 5-10 years	50 (29.4)	30 (17.6)		
• more than 10 years	37 (21.8)	25 (14.7)	1.73 (3)	.63
12. Rating of injury				
Mild	37 (21.8)	22 (12.9)		
Moderate	46 (27.1)	26 (15.3)		
Severe	21 (1.4)	18 (10.6)	1.16 (2)	.55
13. Injury inhibits playing				
• Yes	64 (37.6)	42 (24.7)	.076 (1)	.78

• No	40 (23.5)	24 (14.1)		
14. Treatment				
• Home remedies and bed rest	47 (27.6)	17 (10.0)	8.00 (3)	.04
• Medication	18 (10.6)	21 (12.4)		
• Physiotherapy	28 (16.5)	20 (11.8)		
• Surgery	11 (6.5)	8 (4.7)		
15. Social Support				
• Yes	81 (47.6)	58 (34.1)	2.70 (1)	.10
• No	23 (13.5)	8 (4.7)		

4.4.4 Environmental QoL:

Chi square test of association was run to check the association between demographic variable and computed scores of psychological domain of quality-of-life scale. Result of Pearsons chi square showed significant association of **Education level** $\chi^2 = 8.25 (3)$, P-value = .04 ; **Health insurance** $\chi^2 = 4,740 (1)$, P-value = .02, **Treatment method** $\chi^2 = 14.5 (3)$, P-value = .00.

Table 8: Association of demographics with environmental domain of QOL.

Variables	Environmental Quality of Life		Chi-square (df)	P-value
	Low environmental Qol = n(%)	High environmental Qol= n(%)		
1. Gender				
• Male	74 (43.5)	76 (44.7)	.80 (1)	.37
• Female	12 (7.1)	8 (4.7)		
2. Age				
• 20-25 years	39 (22.9)	40 (23.5)	1.90 (3)	.59
• 26-30 years	24 (14.1)	19 (11.2)		
• 31-35 years	12 (7.1)	17 (10.0)		
• 35-40 years	11 (6.5)	8 (4.7)		
3. Education Level				
• Primary	19 (11.2)	6 (3.5)	8.25 (3)	.04
• Matric	11 (6.5)	17 (10.0)		
• High school	15 (8.8)	17 (10.0)		

• University	41 (24.1)	44 (25.9)		
4. Marital status				
• Single	56 (32.9)	45 (26.5)	2.34 (1)	.12
• Married	30 (17.6)	39 (22.9)		
5. Living Arrangement				
• With Family	71 (41.8)	77 (45.3)	3.12 (1)	.07
• In a hostel	15 (8.8)	7 (4.1)		
6. Employment Status				
• Employed	60 (35.5)	69 (40.8)	4.72 (2)	.09
• Unemployed	25 (14.8)	14 (8.3)		
7. Monthly Income				
• 15,000-30,000	23 (15.5)	12 (8.1)	5.26 (3)	.15
• 31,000- 50,000	24 (16.2)	27 (18.2)		
• 51,000-80,000	13 (8.8)	19 (12.8)		
• more than 80,000	13 (8.8)	17 (11.5)		
8. Level of playing				
• Club	45 (28.0)	42 (26.1)	.102 (2)	.95
• Department	19 (11.8)	18 (11.2)		
• Both	18 (11.2)	19 (11.8)		
9. Playing Hockey as a:				
• Hobby	49 (30.4)	39 (24.2)	2.97 (2)	.22
• Profession	32 (19.9)	40 (24.8)		
10. Health Insurance				
• Yes	35 (20.6)	21 (12.4)	4.74 (1)	.02
• No	51 (30.0)	63 (37.1)		
11. Years playing hockey				
• 0-5 years	17 (10.0)	10 (5.9)	4.62 (3)	.20
• 5-10 years	35 (20.6)	45 (26.5)		
• more than 10 years	34 (20.0)	28 (16.5)		
12. Rating of injury				
Mild	36 (21.2)	23 (13.5)	4.86 (2)	.08
Moderate	30 (17.6)	42 (24.7)		
Severe	20 (11.8)	19 (11.9)		
13. Injury inhibits playing				
• Yes	41 (28.8)	57 (33.5)	2.14 (1)	.14
• No	37 (21.8)	27 (15.9)		
14. Treatment				
• Home remedies and bed rest	39 (24.1)	23 (13.5)	14.5 (3)	.00
• Medication	11 (6.5)	28 (16.5)		
• Physiotherapy	27 (15.9)	21 (12.4)		
• Surgery	7 (4.1)	12 (7.1)		

15. Social Support				
• Yes	68 (40.0)	71 (41.8)	.84 (1)	.35
• No	18 (10.6)	13 (7.6)		

4.5 Inferential statistics of SF-36:

4.5.1 Physical Functioning:

Chi square test of association was run to check the association between demographic variable and computed scores of physical functioning of SF-36 scale. Result of Pearsons chi square showed significant association of **social support system** $\chi^2 = 4.164 (1)$, P-value = .04.

Table 9: Association of demographics with SF-36 domain physical functioning.

Variables	Physical Functioning		Chi-square (df)	P-value
	Poor PF n (%)	Good PF n (%)		
1. Gender				
• Male	76 (44.7)	74 (43.5)	.133	.71
• Female	11 (6.5)	9 (5.3)		
2. Age				
• 20-25 years	45 (26.5)	34 (20.0)	3.81 (3)	.28
• 26-30 years	20 (11.8)	23 (13.5)		
• 31-35 years	11 (6.5)	18 (10.6)		
• 35-40 years	11 (6.5)	8 (4.7)		
3. Education Level				
• Primary	14 (8.2)	11 (6.5)	.42 (3)	.93
• Matric	15 (8.8)	13 (7.6)		
• High school	16 (9.4)	16 (9.4)		
• University	42 (24.7)	49 (28.8)		
4. Marital status				
• Single	53 (31.2)	48 (28.2)	.16 (1)	.68
• Married	34 (20.0)	35 (20.6)		
5. Living Arrangement				
• With Family	78 (45.9)	41.2 (70)	1.06 (1)	.30
• In a hostel	9 (5.3)	13 (7.6)		
6. Employment Status				
• Employed	64 (37.9)	65 (38.5)	1.59 (1)	.45

• Unemployed	22 (13.0)	17 (10.1)		
7. Monthly Income				
• 15,000-30,000	21 (14.2)	14 (9.5)		
• 31,000- 50,000	28 (18.9)	23 (15.5)		
• 51,000-80,000	14 (9.5)	18 (12.2)		
• more than 80,000	14 (9.5)	16 (10.8)	2.28 (3)	.51
8. Level of playing				
• Club	41 (25.5)	46 (28.6)		
• Department	18 (11.2)	19 (11.8)		
• Both	23 (14.3)	14 (18.7)	2.44 (2)	.29
9. Playing Hockey as a:				
• Hobby	45 (28.0)	43 (26.7)		
• Profession	37 (23.0)	35 (21.7)	1.04 (2)	.59
10. Health Insurance				
• Yes	33 (19.4)	23 (13.5)		
• No	54 (31.8)	60 (35.3)	2.00 (1)	.15
11. Years playing hockey				
• 0-5 years	12 (7.1)	15 (8.8)		
• 5-10 years	41 (24.1)	39 (22.9)		
• more than 10 years	33 (19.4)	29 (17.1)	1.54 (3)	.67
12. Rating of injury				
Mild	32 (18.8)	27 (15.9)		
Moderate	37 (21.8)	35 (20.6)		
Severe	18 (10.6)	21 (12.4)	.616 (2)	.73
13. Injury inhibits playing				
• Yes	50 (29.4)	56 (32.9)		
• No	37 (21.8)	27 (15.9)	1.80 (1)	.17
14. Treatment				
• Home remedies and bed rest	38 (22.4)	26 (15.3)		
• Medication	18 (10.6)	21 (12.4)		
• Physiotherapy	20 (11.8)	28 (16.5)		
• Surgery	11 (6.5)	8 (4.7)	4.19 (3)	.24
15. Social Support				
• Yes	66 (38.8)	73 (42.9)		
• No	21 (12.4)	10 (5.9)	4.16 (1)	.04

4.5.2 Role limitation due to physical health:

Chi square test of association was run to check the association between demographic variable and computed scores of role limitations due to physical health of SF-36 scale. Result of Pearsons chi-square showed significant association of **Employment status** $\chi^2 = 6.772$ (2), P-value = .03, **Level of playing** $\chi^2 = 7.149$ (2), P-value = .02, **Health insurance** $\chi^2 = 3.696$ (1), P-value $\leq .05$ and **years playing hockey** $\chi^2 = 8.128$ (3), P-value = .04.

Table 10: Association of demographics with role limitation due to physical health.

Variables	Role Limitation (due to Physical health)		Chi-square (df)	P- value
	Low RL % (n)	High RL % (n)		
1. Gender				
• Male	53.5 (91)	34.7 (59)	.140 (1)	.70
• Female	7.6 (13)	4.1 (7)		
2. Age				
• 20-25 years	30.6 (52)	15.9 (27)	7.21 (3)	.06
• 26-30 years	11.8 (20)	13.5 (23)		
• 31-35 years	10.0 (17)	7.1 (12)		
• 35-40 years	8.8 (15)	2.4 (4)		
3. Education Level				
• Primary	9.4 (16)	5.3 (9)	.98 (3)	.80
• Matric	11.2 (19)	5.3 (9)		
• High school	10.6 (18)	8.2 (14)		
• University	30.0 (51)	20.0 (34)		
4. Marital status				
• Single	37.6 (64)	37 (21.8)	.502 (1)	.47
• Married	23.5 (40)	17.1 (29)		
5. Living Arrangement				
• With Family	52.4 (89)	34.7 (59)	.522 (1)	.47
• In a hostel	8.8 (15)	4.1 (7)		
6. Employment Status				
• Employed	43.2 (73)	33.1 (56)	6.77 (2)	.03
• Unemployed	17.8 (30)	5.3 (09)		
7. Monthly Income				
• 15,000-30,000	12.8 (19)	10.8 (16)	4.29 (3)	.23
• 31,000- 50,000	24.3 (36)	10.1 (15)		
• 51,000-80,000	10.8 (16)	10.8 (16)		

• more than 80,000	11.5 (17)	8.8 (13)		
8. Level of playing				
• Club	31.7 (51)	22.4 (36)	7.14 (2)	.02
• Department	12.4 (20)	10.6 (17)		
• Both	18.6 (30)	4.3 (7)		
9. Playing Hockey as a:				
• Hobby	31.7 (51)	23.0 (37)	2.32 (2)	.31
• Profession	30.4 (49)	14.3 (23)		
10. Health Insurance				
• Yes	23.5 (40)	9.4 (16)	3.69 (1)	.05
• No	37.6 (64)	29.4 (50)		
11. Years playing hockey				
• 0-5 years	6.5 (11)	9.4 (16)	8.12 (3)	.04
• 5-10 years	29.4 (50)	17.6 (30)		
• more than 10 years	25.3 (43)	11.2 (19)		
12. Rating of injury				
Mild	20.6 (35)	14.1 (24)	.388 (2)	.82
Moderate	27.1 (46)	15.3 (26)		
Severe	13.5 (23)	9.4 (16)		
13. Injury inhibits playing				
• Yes	39.4 (67)	22.9 (39)	.489 (1)	.48
• No	21.8 (37)	15.9 (27)		
14. Treatment				
• Home remedies and bed rest	23.5 (40)	14.1 (24)	5.3 (3)	.14
• Medication	10.6 (18)	12.4 (21)		
• Physiotherapy	19.4 (33)	8.8 (15)		
• Surgery	7.6 (13)	3.5 (6)		
15. Social Support				
• Yes	48.2 (82)	33.5 (57)	1.53	.21
• No	12.9 (22)	5.3 (9)		

4.5.3 Role limitation due to emotional problems:

Chi square test of association was run to check the association between demographic variable and computed scores of role limitations due to emotional problems of SF-36 scale. Result of Pearsons chi-square showed significant association of **Gender** $\chi^2 = 3.601 (1)$, P-value $\leq .05$.

Table 11: Association of demographics with role limitation due to emotional problems.

Variables	Role limitation Due to Emotional Problems		Chi-square (df)	P- value
	Low RL (Emotional) = % (n)	High RL (Emotional) = % (n)		
1. Gender				
• Male	29.4 (50)	58.8 (100)	3.60 (1)	.05
• Female	6.5 (11)	5.3 (9)		
2. Age				
• 20-25 years	19.4 (33)	27.1 (46)	2.45 (3)	.48
• 26-30 years	8.2 (14)	17.1 (29)		
• 31-35 years	5.3 (9)	11.8 (20)		
• 35-40 years	2.9 (5)	8.2 (14)		
3. Education Level				
• Primary	5.3 (9)	9.4 (16)	.80 (3)	.84
• Matric	4.7 (8)	11.8 (20)		
• High school	7.1 (12)	11.8 (20)		
• University	18.8 (32)	31.2 (53)		
4. Marital status				
• Single	22.4 (38)	37.1 (63)	.32 (1)	.56
• Married	13.5 (23)	27.1 (46)		
5. Living Arrangement				
• With Family	32.9 (56)	54.1 (92)	1.90 (1)	.16
• In a hostel	2.9 (5)	10.0 (17)		
6. Employment Status				
• Employed	26.6 (45)	49.7 (84)	1.05 (2)	.58
• Unemployed	9.5 (16)	13.6 (23)		
7. Monthly Income				
• 15,000-30,000	8.8 (13)	14.9 (22)	2.06 (3)	.55
• 31,000- 50,000	12.8 (19)	21.6 (32)		
• 51,000-80,000	8.1 (12)	13.5 (20)		
• more than 80,000	4.7 (7)	15.5 (23)		
8. Level of playing				
• Club	16.8 (27)	37.3 (60)	4.66 (2)	.09
• Department	8.1 (13)	14.9 (24)		
• Both	11.8 (19)	11.2 (18)		
9. Playing Hockey as a:				
• Hobby	19.9 (32)	34.8 (56)	.604 (2)	.73
• Profession	16.8 (27)	28.0 (45)		
10. Health Insurance				

• Yes	13.5 (23)	19.4 (33)	.977 (1)	.32
• No	22.4 (38)	44.7 (76)		
11. Years playing hockey				
• 0-5 years	4.7 (8)	11.2 (19)	1.23 (3)	.74
• 5-10 years	17.1 (29)	30.0 (51)		
• more than 10 years	14.1 (24)	22.4 (38)		
12. Rating of injury				
Mild	11.2 (19)	23.5 (40)	.630 (2)	.73
Moderate	16.5 (28)	25.9 (44)		
Severe	8.2 (14)	14.7 (25)		
13. Injury inhibits playing				
• Yes	23.5 (40)	38.8 (66)	.420 (1)	.51
• No	12.4 (21)	25.3 (43)		
14. Treatment				
• Home remedies and bed rest	12.9 (22)	24.7 (42)	1.32 (3)	.72
• Medication	9.4 (16)	13.5 (23)		
• Physiotherapy	10.6 (18)	17.6 (30)		
• Surgery	2.9 (5)	8.2 (14)		
15. Social Support				
• Yes	30.0 (51)	51.8 (88)	.216 (1)	.64
• No	5.9 (10)	12.4 (21)		

4.5.4 Vitality (Energy/Fatigue):

Chi square test of association was run to check the association between demographic variable and computed scores of energy/fatigue of SF-36 scale. Result of pearson's chi-square showed significant association of **Gender** $\chi^2 = 6.661 (1)$, P-value $\leq .01$.

Table 12: 4.9 Association of demographics with role limitation due to Vitality

Variables	Vitality		Chi-square (df)	P-value
	Low energy/fatigue =% (n)	High energy/fatigue =% (n)		
1. Gender				
• Male	43.5 (74)	44.7 (7.6)	6.66 (1)	.01
• Female	9.4 (16)	2.4 (4)		
2. Age				

• 20-25 years	25.3 (43)	21.2 (36)		
• 26-30 years	12.9 (22)	12.4 (21)		
• 31-35 years	9.4 (16)	7.6 (13)		
• 35-40 years	5.3 (9)	5.9 (10)		
3. Education Level				
• Primary	8.8 (15)	5.9 (10)		
• Matric	5.9 (10)	10.6 (18)		
• High school	10.0 (17)	8.8 (15)		
• University	28.2 (48)	21.8 (37)		
4. Marital status				
• Single	32.9 (56)	26.5 (45)		
• Married	20.0 (34)	20.6 (35)		
5. Living Arrangement				
• With Family	47.1 (80)	40.0 (68)		
• In a hostel	5.9 (10)	7.1 (12)		
6. Employment Status				
• Employed	40.8 (69)	35.5 (60)		
• Unemployed	11.8 (20)	11.2 (19)		
7. Monthly Income				
• 15,000-30,000	15.5 (23)	8.1 (12)		
• 31,000- 50,000	18.2 (27)	16.2 (24)		
• 51,000-80,000	9.5 (14)	12.2 (18)		
• more than 80,000	10.1 (15)	10.1 (15)		
8. Level of playing				
• Club	29.8 (48)	24.2 (39)		
• Department	9.9 (16)	13.0 (21)		
• Both	13.0 (1)	9.9 (16)		
9. Playing Hockey as a:				
• Hobby	31.0 (50)	23.6 (38)		
• Profession	21.1 (34)	23.6 (38)		
10. Health Insurance				
• Yes	17.6 (30)	15.3 (26)		
• No	35.3 (60)	31.8 (54)		
11. Years playing hockey				
• 0-5 years	9.4 (16)	6.5 (11)		
• 5-10 years	23.5 (40)	23.5 (40)		
• more than 10 years	19.4 (33)	17.1 (29)		
12. Rating of injury				
• Mild	20.6 (35)	14.1 (24)		
• Moderate	21.2 (36)	21.2 (36)		
• Severe	11.2 (19)	11.8 (20)		

13. Injury inhibits playing				
• Yes	33.5 (57)	28.8 (49)	.078 (1)	.78
• No	19.4 (33)	18.2 (31)		
14. Treatment				
• Home remedies and bed rest	23.5 (40)	14.1 (24)	6.33 (3)	.09
• Medication	9.4 (16)	13.5 (23)		
• Physiotherapy	12.9 (22)	15.3 (6)		
• Surgery	7.1 (12)	4.1 (7)		
15. Social Support				
• Yes	42.4 (72)	39.4 (67)	.399 (1)	.52
• No	10.6 (18)	7.6 (13)		

4.5.5 Emotional well-being:

Chi square test of association was run to check the association between demographic variable and computed scores of emotional well-being of SF-36 scale. Result of Pearson's chi-square showed significant association of **Gender** $\chi^2 = 7.844 (1)$, P-value = .00; and **Education level** $\chi^2 = 10.91(3)$, P-value = .01.

Table 13: Association of demographics with emotional well-being:

Variables	Emotional well-being		Chi-square (df)	P-value
	Low emotional well-being = % (n)	High emotional well-being = % (n)		
1. Gender				
• Male	41.2 (70)	47.1 (80)	7.84 (1)	.00
• Female	9.4 (16)	2.4 (4)		
2. Age				

• 20-25 years	25.9 (44)	20.6 (35)	1.67 (3)	.64
• 26-30 years	11.2 (19)	14.1 (24)		
• 31-35 years	8.2 (14)	8.8 (15)		
• 35-40 years	5.3 (9)	5.9 (10)		
3. Education Level				
• Primary	11.2 (19)	3.5 (6)	10.91 (3)	.01
• Matric	5.3 (9)	11.2 (19)		
• High school	8.2 (14)	10.6 (18)		
• University	25.9 (44)	24.1 (41)		
4. Marital status				
• Single	31.2 (54)	27.6 (47)	.824 (2)	.36
• Married	18.8 (32)	21.8 (37)		
5. Living Arrangement				
• With Family	42.9 (73)	44.1 (75)	.731 (1)	.39
• In a hostel	7.6 (13)	5.3 (9)		
6. Employment Status				
• Employed	39.1 (66)	37.3 (63)	1.090 (2)	.58
• Unemployed	11.2 (19)	11.8 (20)		
7. Monthly Income				
• 15,000-30,000	15.5 (23)	8.1 (12)	5.188 (3)	.15
• 31,000- 50,000	18.2 (27)	16.2 (24)		
• 51,000-80,000	8.8 (13)	12.8 (19)		
• more than 80,000	8.8 (13)	11.5 (17)		
8. Level of playing				
• Club	28.6 (46)	25.5 (41)	.984 (2)	.61
• Department	118 (19)	11.2 (18)		
• Both	9.9 (16)	13.0 (21)		
9. Playing Hockey as a:				
• Hobby	30.4 (49)	24.2 (39)	3.519 (2)	.17
• Profession	19.3 (31)	25.5 (41)		
10. Health Insurance				
• Yes	18.8 (32)	14.1 (24)	1.435 (1)	.23
• No	31.8 (54)	35.3 (60)		
11. Years playing hockey				
• 0-5 years	9.4 (16)	6.5 (11)	3.135 (2)	.37
• 5-10 years	24.7 (42)	22.4 (38)		
• more than 10 years	15.9 (27)	20.6 (35)		
12. Rating of injury				
Mild	21.2 (36)	13.5 (23)	3.98 (2)	.13
Moderate	19.4 (33)	22.9 (39)		
Severe	10.0 (17)	12.9 (22)		

13. Injury inhibits playing				
• Yes	28.8 (49)	33.5 (57)	2.14 (1)	.14
• No	21.8 (37)	15.9 (27)		
14. Treatment				
• Home remedies and bed rest	21.8 (37)	15.9 (27)	2.93 (3)	.40
• Medication	9.4 (16)	13.5 (23)		
• Physiotherapy	13.5 (23)	14.7 (25)		
• Surgery	5.9 (10)	5.3 (9)		
15. Social Support				
• Yes	38.8 (66)	42.9 (73)	2.94 (1)	.08
• No	11.8 (20)	6.5 (11)		

4.5.6 Social well-being:

Chi square test of association was run to check the association between demographic variable and computed scores of social well-being of SF-36 scale. Result of pearson's chi-square showed significant association of **Treatment method** $\chi^2 = 7.50 (1)$, P-value $\leq .05$.

Table 14: Association of demographics with social well-being

Variables	Social well-being		Chi-square (df)	P-value
	Low social well-being % (n)	High social well-being % (n)		
1. Gender				
• Male	34.7 (59)	53.5 (91)	.833 (1)	.36
• Female	5.9 (10)	5.9 (10)		
2. Age				
• 20-25 years	21.8 (37)	24.7 (42)	2.58 (3)	.46
• 26-30 years	8.8 (15)	16.5 (28)		
• 31-35 years	6.5 (11)	10.6 (18)		
• 35-40 years	3.5 (6)	7.6 (13)		
3. Education Level				
• Primary	5.3 (9)	9.4 (16)	1.68 (3)	.64
• Matric	5.3 (9)	11.2 (19)		
• High school	8.8 (15)	10.0 (17)		
• University	21.2 (36)	28.8 (49)		
4. Marital status				
• Single	23.5 (40)	35.9 (61)	.100 (1)	.75

• Married	17.1 (29)	23.5 (40)		
5. Living Arrangement				
• With Family	33.5 (57)	53.5 (91)		
• In a hostel	7.1 (12)	5.9 (10)	2.04 (1)	.15
6. Employment Status				
• Employed	29.0 (49)	47.3 (80)		
• Unemployed	11.8 (20)	11.2 (19)	2.88 (2)	.23
7. Monthly Income				
• 15,000-30,000	11.5 (17)	12.2 (18)		
• 31,000- 50,000	13.5 (20)	20.9 (31)		
• 51,000-80,000	9.5 (14)	12.2 (18)		
• more than 80,000	5.4 (8)	14.9 (22)	3.49 (3)	.32
8. Level of playing				
• Club	21.7 (35)	32.7 (52)		
• Department	9.9 (16)	13.0 (21)		
• Both	8.7 (14)	14.3 (23)	.226 (2)	.89
9. Playing Hockey as a:				
• Hobby	24.8 (40)	29.4 (48)		
• Profession	15.5 (25)	29.2 (47)	2.57 (2)	.27
10. Health Insurance				
• Yes	15.3 (26)	17.6 (30)		
• No	25.3 (43)	41.8 (71)	1.181 (1)	.27
11. Years playing hockey				
• 0-5 years	7.6 (13)	8.2 (14)		
• 5-10 years	20.0 (34)	27.1 (46)		
• more than 10 years	12.9 (22)	23.5 (40)	2.11 (3)	.54
12. Rating of injury				
• Mild	12.9 (22)	21.8 (37)		
• Moderate	18.2 (31)	24.1 (41)		
• Severe	9.4 (16)	13.5 (23)	.451 (2)	.79
13. Injury inhibits playing				
• Yes	23.5 (40)	38.8 (66)		
• No	17.1 (29)	20.6 (35)	.950 (1)	.33
14. Treatment				
• Home remedies and bed rest	15.3 (26)	22.4 (38)		
• Medication	8.2 (14)	14.7 (25)		
• Physiotherapy	9.4 (16)	18.8 (32)		
• Surgery	7.6 (13)	3.5 (6)	7.50 (3)	.05
15. Social Support				
• Yes	34.7 (59)	47.1 (80)		
• No	5.9 (10)	12.4 (21)	1.09 (1)	.29

4.5.7 Pain:

Chi square test of association was run to check the association between demographic variable and computed scores of pain of SF-36 scale. Result of Pearson's chi-square showed significant association of **Gender** $\chi^2 = 6.60$ (1), P-value = .01; and **Education level** $\chi^2 = 15.18$ (3), P-value = .00; and **Marital status** $\chi^2 = 4.844$ (1), P-value = .02; and **Employment status** $\chi^2 = 7.118$ (2), P-value = .02.

Table 15: Association of demographics with pain:

Variables	Pain		Chi-square (df)	P-value
	Low pain % (n)	High Pain % (n)		
1. Gender				
• Male	53.5 (91)	34.7 (59)	6.60 (1)	.01
• Female	8.8 (15)	2.9 (5)		
2. Age				
• 20-25 years	27.1 (46)	19.4 (33)	4.85	.18
• 26-30 years	15.9 (27)	9.4 (16)		
• 31-35 years	11.8 (20)	5.3 (9)		
• 35-40 years	9.4 (16)	1.8 (3)		
3. Education Level				
• Primary	8.2 (14)	6.5 (11)	15.1 (3)	.00
• Matric	5.9 (10)	10.6 (18)		
• High school	12.4 (21)	6.5 (11)		
• University	37.6 (64)	12.4 (21)		
4. Marital status				
• Single	34.1 (58)	25.3 (43)	4.84 (1)	.02
• Married	30.0 (51)	10.6 (18)		
5. Living Arrangement				
• With Family	54.1 (92)	32.9 (56)	1.90 (1)	.16
• In a hostel	10.0 (17)	2.9 (5)		
6. Employment Status				
• Employed	52.7 (89)	23.7 (40)	7.11 (2)	.02
• Unemployed	11.2 (19)	11.8 (20)		
7. Monthly Income				
• 15,000-30,000	13.5 (20)	10.1 (15)	1.47 (3)	.68
• 31,000- 50,000	23.6 (35)	10.8 (16)		
• 51,000-80,000	14.9 (22)	6.8 (10)		

• more than 80,000	13.5 (20)	6.8 (10)		
8. Level of playing				
• Club	31.7 (51)	22.4 (36)	4.67	.09
• Department	13.7 (22)	9.3 (15)		
• Both	18.0 (29)	5.0 (8)		
9. Playing Hockey as a:				
• Hobby	33.5 (54)	21.1 (34)	.843 (2)	.65
• Profession	29.2 (47)	15.5 (25)		
10. Health Insurance				
• Yes	21.8 (37)	11.2 (19)	.139 (1)	.71
• No	42.4 (72)	24.7 (42)		
11. Years playing hockey				
• 0-5 years	10.6 (18)	5.3 (9)	1.93 (3)	.58
• 5-10 years	30.6 (52)	16.5 (28)		
• more than 10 years	22.9 (39)	13.5 (23)		
12. Rating of injury				
• Mild	19.4 (33)	15.3 (26)	3.88 (2)	.14
• Moderate	30.6 (52)	11.8 (20)		
• Severe	14.1 (24)	8.8 (15)		
13. Injury inhibits playing				
• Yes	42.4 (72)	20.0 (34)	1.77 (1)	.18
• No	21.8 (37)	15.9 (27)		
14. Treatment				
• Home remedies and bed rest	22.4 (38)	15.3 (26)	1.99 (3)	.57
• Medication	15.3 (26)	7.6 (13)		
• Physiotherapy	20.0 (34)	8.2 (14)		
• Surgery	6.5 (11)	4.7 (8)		
15. Social Support				
• Yes	53.5 (91)	28.2 (48)	.604 (1)	.43
• No	10.6 (18)	7.6 (13)		

4.5.8 General health:

Chi square test of association was run to check the association between demographic variable and computed scores of general health of SF-36 scale. Result of Pearson's chi-square showed significant association of **Gender** $\chi^2 = 5.667 (1)$, P-value = .01; Health insurance $\chi^2 = 3.835$

(1), P-value $\leq .05$; and **rating of injury** $\chi^2 = 5.959$ (2), P-value $\leq .05$; **stop playing hockey** $\chi^2 = 3.608$ (1), P-value $\leq .05$ and **Treatment method** $\chi^2 = 7.994$ (3), P-value = .04.

Table 16: Association of demographics with general health

Variables	General Health		Chi-square (df)	P-value
	Good general health= % (n)	Poor general health= % (n)		
1. Gender				
• Male	41.2 (70)	47.1 (80)	5.66 (1)	.01
• Female	8.8 (15)	2.9 (5)		
2. Age				
• 20-25 years	27.1 (46)	19.4 (33)	5.02 (3)	.17
• 26-30 years	10.6 (18)	14.7 (25)		
• 31-35 years	6.5 (11)	10.6 (18)		
• 35-40 years	5.9 (10)	5.3 (9)		
3. Education Level				
• Primary	10.0 (17)	4.7 (8)	4.51 (3)	.21
• Matric	7.1 (12)	9.4 (16)		
• High school	10.0 (17)	8.8 (15)		
• University	22.9 (39)	27.1 (46)		
4. Marital status				
• Single	31.2 (53)	28.2 (48)	.610 (1)	.43
• Married	18.8 (32)	21.8 (37)		
5. Living Arrangement				
• With Family	41.8 (71)	45.3 (77)	1.88 (1)	.17
• In a hostel	8.2 (14)	4.7 (8)		
6. Employment Status				
• Employed	39.6 (67)	36.7 (62)	1.82 (2)	.40
• Unemployed	10.1 (17)	13.0 (22)		
7. Monthly Income				
• 15,000-30,000	15.5 (23)	8.1 (12)	2.78 (3)	.42
• 31,000- 50,000	17.6 (26)	16.9 (25)		
• 51,000-80,000	11.5 (17)	10.1 (15)		
• more than 80,000	9.5 (14)	10.8 (16)		
8. Level of playing				
• Club	27.3 (44)	26.7 (43)	.492 (2)	.78
• Department	12.3 (20)	10.6 (17)		
• Both	10.6 (17)	12.4 (20)		
9. Playing Hockey as a:				
• Hobby	30.4 (49)	24.2 (39)	3.019 (2)	.22
• Profession	19.9 (32)	24.8 (40)		

10. Health Insurance				
• Yes	20.0 (34)	12.9 (22)	3.83 (1)	.05
• No	30.0 (51)	37.1 (63)		
11. Years playing hockey				
• 0-5 years	8.8 (15)	7.1 (12)	3.39 (3)	.33
• 5-10 years	25.3 (43)	21.8 (37)		
• more than 10 years	15.3 (26)	21.2 (36)		
12. Rating of injury				
• Mild	21.8 (37)	12.9 (22)	5.95 (2)	.05
• Moderate	18.8 (32)	23.5 (40)		
• Severe	9.4 (16)	13.5 (23)		
13. Injury inhibits playing				
• Yes	27.6 (47)	34.7 (59)	3.60 (1)	.05
• No	22.4 (38)	15.3 (26)		
14. Treatment				
• Home remedies and bed rest	21.8 (37)	15.9 (27)	7.99 (3)	.04
• Medication	8.2 (14)	14.7 (25)		
• Physiotherapy	12.4 (21)	15.9 (27)		
• Surgery	7.6 (13)	3.5 (6)		
15. Social Support				
• Yes	40.6 (69)	41.2 (70)	.039 (1)	.84
• No	9.4 (16)	8.8 (15)		

CHAPTER V- DISCUSSION

Total one hundred and seventy hockey players took part in the study. Out of 170 players the majority (n=112, 65.9%) reported lower QoL. Whereas male (n=55, 36.7%) shown high quality of life than female players (n=3, 15%). This present study was aimed to assess the quality of life after injury among hockey players. Because sports of field hockey require a lot of physical effort and body movements, the chances of getting hurt are quite high, especially during events. Injuries can happen in different ways, like getting hit by something, accidents without direct hits, or using the body too much. These injuries can affect any part of the body and fall into categories like getting hit by a ball, a stick, or a player (contact injuries), accidents without hitting anything (noncontact injuries), or getting hurt from doing the same thing over and over (overuse injuries). (Karsten Hollander et al., 2023)

As the researcher used two instrument to assess the QoL, Let's discuss the results of WHOQOL-BREF in detail:

It's interesting to note that participants who have attended university (n = 85, 50.0%, P = 0.02), tend to report a higher level of physical quality of life ($\chi^2 = 9.38$ (4), P-value = .02), psychological QoL ($\chi^2 = 9.14$ (3), P-value = .02) and environmental QoL ($\chi^2 = 8.25$ (3), P-value = .04). This observation suggests that there might be a connection between the level of education and the ability to recover better after experiencing injuries. This could mean that people with more education might have better knowledge or resources to take care of themselves during the recovery process, which positively affects their physical and mental well-being. Whereas social QoL didn't show any significant association with education ($\chi^2 = 5.29$ (3), P-value = .15).

This present study was aimed to assess the quality of life after injury among hockey players. Because sports of field hockey require a lot of physical effort and body movements, the chances of getting hurt are quite high, especially during events. Injuries can happen in different ways,

like getting hit by something, accidents without direct hits, or using the body too much. These injuries can affect any part of the body and fall into categories like getting hit by a ball, a stick, or a player (contact injuries), accidents without hitting anything (noncontact injuries), or getting hurt from doing the same thing over and over (overuse injuries). (Karsten Hollander et al., 2023)

The monthly income of players was strongly associated with their physical QoL ($p = 0.04$). Players with higher incomes tended to report better physical QoL ($\chi^2 = 11.72$ (3), P -value = 0.00), suggesting that financial stability might contribute to improved access to healthcare resources and rehabilitation options. Monthly income significantly impacts psychological QOL. Higher income groups experience better psychological well-being ($\chi^2 = 8.47$ (3), P -value = 0.03)). Monthly income also influences social QOL ($\chi^2 = 8.12$ (3), P -value = 0.04). Higher income groups report better social well-being. Sufficient income allows individuals to participate in social activities, engage in leisure pursuits, and maintain relationships. Whereas environmental QoL hasn't shown any significance with monthly income.

Similarly, regarding the influence of financial incentives, a study's results indicated a significant association between finance and physical performance in male field hockey university players. Participants reported more agreement towards financial incentives-related variables (availability of daily financial allowances during competitions, spending of sufficient funds on sports by the authorities, expectations of bright carrier based on sports, and observation of sports 2022 quota and availability of sports scholarship) tended to report better QoL. (Ali, Azam, & Rasheed, 2022).

Playing hockey as a profession or hobby showed significance with the Physical QoL ($\chi^2 = 5.94$ (2), P -value ≤ 0.05). While it remained non-significant with the rest of the domains.

The type of treatment received by post-injury significantly affected players' physical QoL. Those who underwent surgery (n=17, 9.5%) or received physiotherapy (n=48, 23.8%) reported higher physical QoL, whereas those relying on home remedies and bed rest (n=54, 37.6%), or medication (n=39, 23.0%) reported lower physical QoL scores. Moreover, the type of treatment received significantly ($\chi^2 = 16.3$ (3), P-value = .00) affected psychological QoL, with different treatments yielding different emotional outcomes. The influence of different treatments on psychological QoL reflects how it contributes to addressing not only physical but also emotional aspects of recovery. Players who underwent surgery, physiotherapy, or medication might have felt more actively engaged in their recovery process, leading to a sense of progress and control with the help of healthcare providers. On the other hand, those relying on home remedies and bed rest might feel more passive in their recovery journey, potentially affecting their emotional well-being. Treatment method has shown significance with environmental QoL ($\chi^2 = 14.5$ (3), P-value = .00) that indicates that better environment can be a driving force for better treatment and its outcome. Treatment method was appeared significant with low social QoL ($\chi^2 = 8.00$ (3), P-value = 0.04). This finding suggests that Factors such as the treatment's effectiveness, duration, and associated restrictions might influence an individual's ability to participate in social activities and maintain relationships. A study explained that a short time (around 24 to 48 hours) of giving the mind and body a rest is usually suitable for most athletes. After this, players should slowly start doing activities. The specific amount of rest and how long it should last are not clearly known yet and need more study. The information suggests that treatments like exercises along with combined care efforts, can be helpful. Doing exercises just below the level that causes symptoms, but not pushing too hard, might also be useful. (Schneider et al., 2017)

Social support emerged as a significant factor influencing physical QoL. Players with access to social support systems (n=139, 81.8%) reported higher physical QoL, highlighting the importance of having a network that can provide emotional and practical assistance during recovery. Social support remained non-significant with the other three domains.

Additionally, players who were employed showed higher psychological QoL ($\chi^2 = 6.50$ (2), P-value = .03), indicating the influence of having a job on players' emotional state. The higher psychological QoL reported by employed players a high QoL because it provides the sense of purpose, routine, and social interaction that comes with having a job. Employment provides a distraction from the challenges of recovery, keeps players busy and engaged, and offers a sense of accomplishment. This engagement contributes to better psychological well-being by reducing feelings of isolation and promoting a positive mindset. Employment status appeared to be nonsignificant with the rest of the three domains.

Feeling hindered by injuries negatively impacted psychological QoL, emphasizing the emotional toll of being unable to play. Feeling hindered by injuries significantly ($\chi^2 = 8.362$ (1), P-value = .00) affecting psychological QoL is understandable. Field hockey is not only a physical activity but also a source of enjoyment, camaraderie, and identity for players. When injuries prevent players from participating in the sport they love, they experience emotional distress, frustration, and a sense of loss. This emotional impact can directly influence their overall psychological well-being. Some participants reported that when they cannot play hockey due to injury, they prefer to come to stadium and watch others playing. By this approach they don't feel detached or depressed. This variable had not shown any significance with other domains of QoL. A study explained the way athletes react to injuries can vary, and there's no set pattern or expected response. This reaction spans from right after the injury happens, through the recovery process, rehabilitation, and eventually getting back to being active.

Usually, athletes can get back to how they were before the injury. But if the injury is more severe, it might even affect their ability to keep playing in the long term. (Putukian, 2014)

Having a health Insurance can impact the environmental QoL as it emerged as significant ($\chi^2 = 4.74$ (1), P-value = .02) and non-significant in other domains. Hockey players with health insurance might experience a greater sense of security and stability, knowing that they have access to medical care in case of health-related issues. This security could play its role to a more positive perception of their surroundings. On the other hand, those without health insurance might feel vulnerable, which could potentially influence their overall assessment of their environment.

Certain factors like gender, age, marital status, and others don't strongly affect how field hockey players perceive their physical, psychological, social, and environmental well-being during recovery from an injury. This means that these factors may not have a big impact on the recovery process individually. However, it's important to consider the combined effects or interactions of these factors when designing rehabilitation and support strategies for injured players. So, even though these factors may not be important on their own, they could still have an impact when considered together.

The second instrument that was used to collect data is SF-36. The SF-36 (Short Form 36) is a widely used health survey that assesses health-related quality of life across various domains. It includes eight subscales that can be grouped into two main components: physical and mental. These components provide insights into an individual's overall well-being, including their physical health and mental health.

Physical component includes:

- Physical Functioning: Measures an individual's ability to perform physical activities and tasks.
- Role-Physical: Assesses limitations in daily activities due to physical health issues.
- Bodily Pain: Examines the extent of pain and discomfort experienced by an individual.
- General Health: Gauges perceptions of overall health and vitality.

The majority of the studies used the SF-36 to evaluate QoL; in this way, the most commonly evaluated domains were mental health, physical component score, bodily pain, general health, physical functioning, physical, vitality, social functioning, mental component score and emotional. (Moreira, Vagetti, de Oliveira, & de Campos, 2014)

Let's discuss the results of the physical component of SF-36 to understand the demographic associations.

The results suggested a statistically significant association between social support and physical functioning ($\chi^2 = 4.164$ (1), P-value = .04). Social support may involve emotional, informational, and practical help provided by family, friends, or other social connections. Hockey players who have strong social support networks could potentially benefit from resources, encouragement, and help that contribute positively to their physical well-being. Additionally, no other demographic variable was significant in relation to physical functioning subscale.

The second subscale of the physical component is role limitation due to physical health.

The first variable that appeared significant was employment status. Employed hockey players tend to experience higher role limitation due to physical health ($\chi^2 = 6.772$ (2), P-value = .03) compared to those who are unemployed. This could be linked to the demands of certain jobs,

which might involve more physical effort or longer hours of duty. Employment status is significantly related to pain levels as well which is the third subscale for physical component ($\chi^2 = 7.118 (2)$, P-value = .02.). Employed individuals have higher percentages of low pain compared to unemployed individuals (n= 89, 52.7% vs. n=19, 11.2%). Unemployed individuals have a higher percentage of high pain compared to employed individuals (n=20, 11.8% vs. n=40, 23.7%).

The level of playing hockey is significant also ($\chi^2 = 7.149 (2)$, P-value = .02). Those who play in a club experience higher role limitation compared to those who play in a department or both. This could be due to the more competitive nature and hard training routine associated with club-level play. Moreover, Health facilities are mostly available to the department level players.

The duration of playing hockey has appeared significant with the role limitation due to physical health ($\chi^2 = 8.128 (3)$, P-value = .04). Participants who have been playing hockey for 5-10 years (n=80, 47.0%) experience higher role limitation due to physical health compared to those playing for shorter or longer periods. This observation could be attributed to the fact that players who have played for an intermediate duration might have accumulated more wear and tear on their bodies, potentially leading to increased role limitations. Additionally, they might not have developed the expertise in managing their physical health as effectively as those who have been playing for longer periods.

Health insurance is significant in physical role ($\chi^2 = 3.696 (1)$, P-value $\leq .05$). Hockey players who have health insurance experience lower role limitation due to physical health compared to those without. Health insurance is a source that provides better access to healthcare services that will lead to better management of health issues. Health insurance shows some significance

in relation to general health ($\chi^2 = 3.835 (1)$, P-value $\leq .05$). Individuals with health insurance have a lower percentage of low general health compared to those without insurance. This could indicate the positive impact of access to healthcare resources on general health perception.

In this study gender has a significant association with pain levels ($\chi^2 = 6.60 (1)$, P-value = .01). Males show higher levels of pain compared to females (n= 91, 53.5% vs. n= 15, 8.8% low pain, n=59, 34.7% vs. n=5, 2.9% high pain). This suggests that males might be more prone to experiencing higher pain levels in the field. As men are participated in training sessions regularly and play their game with more passion as compared to female hockey players. Gender appears to be significantly related to general health ($\chi^2 = 5.667 (1)$, P-value = .0) which is the fourth subscale of physical component of SF-36 form. Male participants have higher percentages of both low and high general health compared to female participants, suggesting a potential gender-related difference in health perception.

Education level is significantly related to pain levels ($\chi^2 = 15.18 (3)$, P-value = .00). Players with a university education have a higher percentage of low pain compared to other education levels (n=64, 37.6%). Those with matriculation and high school education have higher percentages of high pain (n=18, 10.6% and n=11, 6.5%, respectively). This could indicate that higher education might be associated with better pain management or awareness.

Marital status is significantly associated with pain levels ($\chi^2 = 4.844 (1)$, P-value = .02). Single individuals have higher percentages of low pain compared to married individuals (n=58, 34.1% vs. n=51, 30.0%). On the other hand, married individuals have a higher percentage of high pain compared to single individuals (n=18, 10.6% vs. n=43, 25.3%). This suggests that marital status might play a role in pain perception and management.

The severity of self-rated injury has a modest association with general health ($\chi^2 = 5.959$ (2), P-value $\leq .05$) that is categorized as subscale of physical component. Players with moderate or severe injuries show slightly higher percentages of low general health compared to those with mild injuries.

The fact that injury inhibits playing is significantly related to general health ($\chi^2 = 3.608$ (1), P-value $\leq .05$). Players whose injuries inhibit playing have higher percentages of both low and high general health compared to those whose injuries do not inhibit playing. This suggests that injuries that impact participation in sport might influence participants' perception of their overall health.

The relationship between treatment type and general health perception holds significant relation ($\chi^2 = 7.994$ (3), P-value = .04). Notably, participants who pursued home remedies and bed rest exhibit higher percentages of both low and high general health when compared to those who opted for surgery. The choice of treatment reflects the nature of the injury. Players with milder injuries chose home remedies, while those undergone surgery had more severe conditions.

Now let's head over to the second component of the SF-36 form that is mental component, which is also comprised of four subscales which are:

- Vitality (Energy/Fatigue): Evaluates an individual's energy levels and sense of vitality.
- Social Functioning: Assesses the impact of health on social interactions and activities.
- Role-Emotional: Examines limitations in daily activities due to emotional health issues.
- Mental Health: Measures emotional well-being, including feelings of happiness and anxiety.

The results of first subscale by chi square test suggest that gender is the only one variable that is significant with the role limitation due to emotional problems ($\chi^2 = 3.601 (1)$, P-value $\leq .05$). Gender also exhibited the significance with vitality ($\chi^2 = 6.661 (1)$, P-value $\leq .01$) and emotional well-being ($\chi^2 = 7.844 (1)$, P-value = .00) which are second and third subscale of the mental component. Males have notably higher percentages of high role limitation due to emotional problems, vitality and emotional well-being compared to females. This significant result suggests that gender might play a substantial role in emotional well-being.

Another statistically significant association was between education level and emotional well-being (level $\chi^2 = 10.91(3)$, P-value = .01.). Looking at the data, it appears that individuals with higher education levels (such as those who attended university, n= 41, 24.1%) have somewhat high percentages of high emotional well-being. However, those with lower education levels (primary, matric, high school) show variations in the percentages of low and high emotional well-being. High quality education is of great assistance in maintaining and managing emotional health.

The fourth subscale showed a significance between treatment and social wellbeing of the hockey players. The significant p-value ($\chi^2 = 7.50 (1)$, P-value $\leq .05$) suggests that the choice of treatment method for injuries is related to social well-being. In this context, it appears that players who opted for "Home remedies and bed rest" or "Physiotherapy" had higher percentages of high social well-being compared to those who chose "Medication" or "Surgery." This result indicates that individuals who used home remedies, bed rest, or physiotherapy might have reported higher levels of social well-being than those who chose medication or surgery.

According to a study's analysis, injuries could impact the physical aspects of Health-Related Quality of Life (HRQOL) more noticeably, while the effect on the mental aspects of HRQOL seemed to be less significant. (Houston, Hoch, & Hoch, 2016)

STRENGTHS

The present study is conducted in the clubs of capital city of Pakistan that assess the quality of life of male and female hockey players only and not a collective assessment of various sport players. This study gives a detailed and valuable insight on the collected data about the factors that are crucial for maintaining a healthy life after injury among hockey players. Universal sampling has been used to collect the data, so each player of the team was included so there was no selection bias. As a cross sectional study, it allowed to represent a snapshot of the quality of life among injured hockey players at a specific point in time which can be helpful to identify immediate effects of injuries on their quality of life. The sample is diverse as it includes players with high and low education, different age groups, both genders and level of injury they have had experienced so the results can be generalized. The use of two validated and reliable instruments has enhanced the credibility of the results.

LIMITATIONS

As the study is cross sectional so it only provides the associations between variables and don't establish a cause-and-effect relationship. There was limited finance and time availability. This study method could not track changes in quality of life over time. Longitudinal studies would be more suitable for assessing changes before and after injuries.

RECOMMENDATIONS

It is suggested that detailed and in-depth qualitative study should be done to analyze the emotional state and coping challenges after injury. Collaboration should be done with Pakistan hockey federation to access a larger pool of potential participants. Their support can enhance participant recruitment and data collection. Categories of injuries can be made to assess the impact on the quality of life of players. Authorities and management of teams can develop and implement injury prevention programs tailored specifically for hockey players in Islamabad. Collaborate with sports organizations to integrate proper training techniques, equipment, and safety protocols. The provision of basic first aid and availability of the medical officer on regular training and tournaments have to be mandatory. Hockey clubs and departments encourage regular health check-ups and medical assessments for hockey players, especially after injuries. This can help detect and address potential long-term effects of injuries on their quality of life. Higher sport authorities can strengthen the support networks for injured players by promoting collaboration between sports organizations, healthcare providers, and sports psychologists. This can facilitate a more comprehensive approach to recovery. Team members should visit their severely injured fellows and keep them updated about the field, so they do not feel left out. Identify potential future research areas, such as exploring the impact of specific types of injuries on quality of life, investigating the role of social support, or analyzing the effects of different rehabilitation strategies.

CONCLUSIONS AND WAY FORWARD

In conclusion, this study aimed to investigate the associations between demographics and quality of life using two validated instruments and chi-square analysis. The findings provide valuable insights into the relationships between various demographic factors and the measured scales. Injuries are inevitable when it comes to playing a sport. This study was aimed to assess the quality of life after injury among hockey players of Islamabad who play hockey at club or department level. Two validated instruments were used to assess the quality of life. One is the WHOQOL-BREF which was helpful to understand physical, psychological, social, and environmental aspects and satisfaction with life. Demographic information was used as independent variable and Pearsons's chi square was run to draw associations. Education level, monthly income, playing hockey as a hobby or profession, treatment and social support were shown significance with physical quality of life. Education, Employment status, Monthly income, stop playing hockey after injury and treatment method showed significant association with psychological domain. Monthly income and treatment were significant with social domain while education level, health insurance and treatment showed significance with environmental domain.

The other instrument used was short form-36 (SF-36). It was divided into two components having four subscales each. Physical component appeared significant with gender, marital status, education level, employment status, years of playing hockey, level of playing, rating of injury, injury inhibits playing, treatment method and social support. When it comes to the association of the second component, mental health, gender, education level and treatment method were significant. Players are more concerned with their physical health than mental. Moving forward, these findings highlight the importance of tailored interventions that cater to the unique health concerns of hockey players. Recognizing the specific factors that impact their

physical and mental health will enable healthcare practitioners, coaches, and administrators to devise targeted strategies for injury prevention, treatment, and overall player well-being. Further research could delve deeper into the reasons behind the observed disparities in players' prioritization of physical and mental health, potentially shedding light on cultural, societal, or sport-related influences. Ultimately, by addressing both the physical and mental dimensions of health in a subtle manner, the hockey community can foster a more comprehensive and effective approach to enhancing the overall quality of life for its players.

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APPENDIX A - QUESTIONNAIRE

QUESTIONNAIRE

Serial No. _____

Date: _____

Assessment of Quality of life after injury among hockey players in Islamabad
(Please answer the following questions after reading them carefully)

SECTION A

Part 1: Sociodemographic Information

1. Gender
 - 1) Male
 - 2) Female

2. Age:
 - 1) 20-25 years
 - 2) 26-30 years
 - 3) 31-35 years
 - 4) 35-40 years

3. Education level?
 - 1) Uneducated
 - 2) Primary
 - 3) Matric
 - 4) High school
 - 5) University

4. Marital Status?
 - 1) Single
 - 2) Married
 - 3) Widowed
 - 4) Divorced.

5. Living arrangement
 - 1) With your family
 - 2) In a hostel

6. What is your Employment status?
 - 1) Employed
 - 2) Unemployed.

7. What is your Monthly Income? (In PKR)
 - 1) 15,000-30,000
 - 2) 31,000- 50,000
 - 3) 51,000-80,000
 - 4) more than 80,000

8. At which level are you playing hockey?
 - 1) Club
 - 2) Department
 - 3) Both

9. You play hockey as:
- 1) Hobby
 - 2) Profession

10. Do you have health insurance?
- 1) Yes
 - 2) No

PART II:
Questions about injury:

11. How many years have you been playing hockey?
- 1) 0-5 years
 - 2) 5-10 years
 - 3) more than 10 years

12. Describe the injury please? (e.g., head injury, knee injury etc.)

-

13. How will you rate your most recent hockey-related injury?
- 1) Mild
 - 2) Moderate
 - 3) Severe

14. Did that injury make you stop taking part in the game or practice sessions?
- 1) Yes
 - 2) No

15. If yes, please mention the duration you didn't play hockey due to your injury. (In days, weeks, or months)

16. What kind of treatment did you receive for your most recent hockey-related injury?
- 1) Home remedies
 - 2) Medication
 - 3) Physiotherapy
 - 4) Surgery
 - 5) None

17. Do you have a support system (e.g., family, friends, teammates) to help you during your recovery from injury?

1) Yes

2) No

18. What strategies do you use to cope with the physical and emotional challenges of recovering from a hockey-related injury?

19. Any suggestion you want to give to authorities related to injury and its recovery.

PART-II (WHOQOL-BREF)

ہدایات:

اس سولن نامہ میں گہبی زندگی کے معیار، صحت اور زندگی کے ٹیگ پیل ووڑکے بارے میں پوچھا جائے گا۔ براہ مہربانی اپنی رائے اور جوابات میں گہبی زندگی کے سوال کے جوابات کے بارے میں اپنی رائے کو واضح طور پر بیان کریں۔ نہ کہ صرف ہنسنا ہے بلکہ جواب دینے کے لیے جو بات آپ کو یاد آ رہی ہے وہ بھی لکھیں۔ یہ جو باتیں آپ کو یاد آ رہی ہیں انہیں اس میں لکھیں۔

		Very poor	Poor	Neither poor nor good	Good	Very good
1.	How would you rate your quality of life? آپ اپنی زندگی کو کس درجے تک پسند کرتے ہیں۔	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2.	How satisfied are you with your health? آپ اپنی صحت سے کس حد تک مطمئن ہیں۔	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things after your injury.

		Not at all	A little	A moderate amount	Very much	An extreme amount

3.	To what extent do you feel that physical pain prevents you from doing what you need to do? آپکس حت کم جس وس کت ے ھیں کہ جس مان ی درد آپکے لھائے وکام کرن ے ھیں رکاوٹ بنتی ے جس کا کرن ا آپکے لھائے ضروری وتا ے۔	5	4	3	2	1
4.	How much do you need any medical treatment to function in your daily life? روزم رکام ورکی اٹھانگ وکے لھائے آپکس حت ک طبی علاج کی ضرورت پٹتی ے۔	5	4	3	2	1
5.	How much do you enjoy life? آپکس حت ک کھلی زندگی سے لطف ان دوز مت ے ھیں	1	2	3	4	5
6.	To what extent do you feel your life to be meaningful? آپکس حت ک کھلی زندگی کو بامعنی م جس وس کت ے ھیں۔	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7.	How well are you able to concentrate? آپکس حت ک کھلی ے آپکو توجہ مرکوز کرن کے قابل سمجھتے ھیں	1	2	3	4	5
8.	How safe do you feel in your daily life? آپ روزم زندگی میں کھلی ے آپ کو کس حت ک مضمونکوت ے ھیں۔	1	2	3	4	5
9.	How healthy is your physical environment? آپکے ارنگرنکا اطععی ماحول کس حت ک صحت فیوٹا ے۔	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things after your injury.

		Not at all	A little	Moderately	Mostly	Completely
10.	Do you have enough energy for everyday life? کیا آپ روزمرہ زندگی کے لئے زماں بستی آئی مہم سوسکتے ہیں	1	2	3	4	5
11.	Are you able to accept your bodily appearance? کیا آپ کے لئے یہاں ظہری جسہاںی شکل وصورت قبول قبول ہے۔	1	2	3	4	5
12.	Have you enough money to meet your needs? کیا آپ کے پاس یہاں ضوری اتہوری کرن کے لئے زماں بیسہ ہوجو ہے۔	1	2	3	4	5
13.	How available to you is the information that you need in your day-to-day life? آپ کو روزمرہ زندگی گزارنے سے نفع لکتنی ضروری معلومات دستیاب ہیں۔	1	2	3	4	5
14.	To what extent do you have the opportunity for leisure activities? آپ کو سہی تفریح کے موقعہ کس حہت کی ہیں۔	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15.	How well are you able to get around? آپ اپنی اورد گرد جسمانی طور پر کس حہت تک چلنے پھرنے کے قابل ہیں۔	1	2	3	4	5

		Very dissatisf ied	Dissatisfi ed	Neither satisfied nor dissatisfie d	Satisfie d	Very satisfie d
16.	How satisfied are you with your sleep? آپ اپنی ریڑھن دس کے ساتھ کس حد تک مطمئن ہیں	1	2	3	4	5
17.	How satisfied are you with your ability to perform your daily living activities? آپ اپنی روزمرہ کام سرانجام دینے کی صلاحیتس کے ساتھ کس حد تک مطمئن ہیں۔	1	2	3	4	5
18.	How satisfied are you with your capacity for work? آپ اپنی کام کرنے کی صلاحیتس کے ساتھ کس حد تک مطمئن ہیں۔	1	2	3	4	5
19.	How satisfied are you with yourself? آپ اپنی ذاتس کے ساتھ کس حد تک مطمئن ہیں۔	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things after injury.

		1	2	3	4	5
20.	How satisfied are you with your personal relationships? آپ اپنے بے عمل واقعات سے کس حد تک مطمئن ہیں۔					
21.	How satisfied are you with your sex life? آپ اپنی فیسیجی زندگی سے کس حد تک مطمئن ہیں۔	1	2	3	4	5
22.	How satisfied are you with the support you get from your friends? آپ اپنے دوستوں سے ملنے والی مدد سے کس حد تک مطمئن ہیں۔	1	2	3	4	5
23.	How satisfied are you with the conditions of your living place? آپ اپنی رہائش کی جگہ کے حالات سے کس حد تک مطمئن ہیں۔	1	2	3	4	5
24.	How satisfied are you with your access to health services? آپ طبی سہولتوں تک پہنچنے والی رسائی سے کس حد تک مطمئن ہیں۔	1	2	3	4	5
25.	How satisfied are you with your transport? آپ اپنے روزانہ آمد و رفت سے کس حد تک مطمئن ہیں۔	1	2	3	4	5
		Never	Seldom	Quite often	Very often	Always
26.	How often do you have negative feelings such as blue mood, despair, anxiety, depression? آپ کس حد تک کون فیل جی اس اس اتکا شریکار ریتے میں تھلا، اٹلی، جوس ی مپیشلی الویس ردگی وغیرہ۔	5	4	3	2	1

RAND 36-Item Health Survey 1.0 Questionnaire Items

Choose one option for each questionnaire item.

In general, would you say your health is:

- 1 - Excellent
 - 2 - Very good
 - 3 - Good
 - 4 - Fair
 - 5 - Poor
-

1. **Compared to one year ago**, how would you rate your health in general **now**?

- 1 - Much better now than one year ago
 - 2 - Somewhat better now than one year ago
 - 3 - About the same
 - 4 - Somewhat worse now than one year ago
 - 5 - Much worse now than one year ago
-

The following items are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
3. Vigorous activities , such as running, lifting heavy objects, participating in strenuous sports	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
4. Moderate activities , such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
5. Lifting or carrying groceries	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
6. Climbing several flights of stairs	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
7. Climbing one flight of stairs	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
8. Bending, kneeling, or stooping	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
9. Walking more than a mile	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
10. Walking several blocks	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
11. Walking one block	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
12. Bathing or dressing yourself	1	2	3

During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of your physical health**?

- | | Yes | No |
|---|-----------------------|-----------------------|
| 13. Cut down the amount of time you spent on work or other activities | <input type="radio"/> | <input type="radio"/> |
| 14. Accomplished less than you would like | 1 | 2 |
| 15. Were limited in the kind of work or other activities | <input type="radio"/> | <input type="radio"/> |
| 16. Had difficulty performing the work or other activities (for example, it took extra effort) | 1 | 2 |
| | <input type="radio"/> | <input type="radio"/> |
| | 1 | 2 |
-

During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)?

- | | 1. Yes | 2. No |
|--|-------------------------|-------------------------|
| 17. Cut down the amount of time you spent on work or other activities | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 18. Accomplished less than you would like | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 19. Didn't do work or other activities as carefully as usual | <input type="radio"/> 1 | <input type="radio"/> 2 |
-

20. During the **past 4 weeks**, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

- 1 - Not at all
 - 2 - Slightly
 - 3 - Moderately
 - 4 - Quite a bit
 - 5 - Extremely
-

21. How much **bodily** pain have you had during the **past 4 weeks**?

- 1 - None
 - 2 - Very mild
 - 3 - Mild
 - 4 - Moderate
 - 5 - Severe
 - 6 - Very severe
-

During the **past 4 weeks**, how much did **pain** interfere with your normal work (including both work outside the home and housework)?

- 1 - Not at all
 - 2 - A little bit
 - 3 - Moderately
 - 4 - Quite a bit
 - 5 - Extremely
-

These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the **past 4 weeks**...

- | | All
of
the
time | Most
of
the
time | A good
bit of the
time | Som
e of
the
time | A little
of the
time | None
of
the
time |
|---|--------------------------|---------------------------|------------------------------|----------------------------|----------------------------|---------------------------|
| 23. Did you feel full of pep? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |
| 24. Have you been a very nervous person? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |
| 25. Have you felt so down in the dumps that nothing could cheer you up? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |
| 26. Have you felt calm and peaceful? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |
| 27. Did you have a lot of energy? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |
| 28. Have you felt downhearted and blue? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |
| 29. Did you feel worn out? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |
| 30. Have you been a happy person? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |
| 31. Did you feel tired? | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 |

32. After injury, how much of the time has **your physical health or emotional problems** interfered with your social activities (like visiting with friends, relatives, etc.)?

- 1 - All of the time
- 2 - Most of the time
- 3 - Some of the time

4 - A little of the time

5 - None of the time

How TRUE or FALSE is **each** of the following statements for you.

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
33. I seem to get sick a little easier than other people	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
34. I am as healthy as anybody I know	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
35. I expect my health to get worse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
36. My health is excellent	1	2	3	4	5

APPENDIX B – CONSENT FORM

<p style="text-align: center;">CONSENT FORM FOR ASSESSMENT OF QUALITY OF LIFE AFTER INJURY AMONG HOCKEY PLAYERS IN ISLAMABAD</p>

I am Rukhsana Jafar, a student of MSPH- Final Semester, Alshifa School of Public Health, Alshifa Eye Hospital, Rawalpindi. I am conducting a study on the “Assessment of Quality of Life after injury among hockey players in Islamabad”.

PURPOSE OF THE STUDY:

The main purpose of the study is to assess the quality of life after injury among hockey players in Islamabad.

What Will You Be Doing?

If you decide to be part of the research, then you have to fill in a questionnaire and try to answer all the questions. It will take 10 to 15 minutes only.

Confidentiality:

All your records will be kept confidential. Your personal identity will not be revealed in any publication or release of results. Only the researcher and her supervisor will have access to your name and any other personal information. The data will be discarded after the entire process of research. Your decision to join in this study is voluntary. We hope you will take part in the study because we need all the information to draw correct conclusions.

PARTICIPANT STATEMENT

I certify that I have read, or had read to me, and that I understand the description of the study. I voluntarily consent to join the study. I have had a chance to ask questions about the study. I understand that I may ask further questions at any time. I have had an opportunity to carefully review the Consent form and ask questions about it.

Signature of Participant

Date

APPENDIX C – IRB LETTER



**AL-SHIFA SCHOOL OF PUBLIC HEALTH
PAKISTAN INSTITUTE OF OPHTHALMOLOGY
AL-SHIFA TRUST, RAWALPINDI**

MSPH-IRB/15-09
27th Mar, 2023

TO WHOM IT MAY CONCERN

This is to certify that **Rukhsana Jafar** D/O **Muhammad Jafar** is a student of Master of Science in Public Health (MSPH) final semester at Al-Shifa School of Public Health, PIO, Al-Shifa Trust Rawalpindi. He/she has to conduct a research project as part of curriculum & compulsory requirement for the award of degree by the Quaid-i-Azam University, Islamabad. His/her research topic, which has already been approved by the Institutional Review Board (IRB), is “**Assessment of quality of life after injury among hockey players in Islamabad**”.

Please provide his/her necessary help and support in completion of the research project. Thank you.

Sincerely,

Dr. Ayesha Babar Kawish
Head
Al-Shifa School of Public Health, PIO
Al-Shifa Trust, Rawalpindi

APPENDIX-D GANTT CHART

Research Plan	March	April	May	June	July	August
Synopsis writing and IRB approval						
Pilot Testing						
Data Collection						
Data Analysis						
Thesis Write-up						
Thesis Submission						

APPENDIX-E EXPENDITURE

Budget Item	Transport	Stationery and internet	Printing	Publishing
Data Collection	Rs.10,000	Rs.8000	Rs.80000	
Thesis Write-up	Rs.6000	Rs.8000	Rs.10,000	Rs.10000
Total Expenditure	Rs.16,000	Rs.16,000	Rs.18,000	Rs.10000
Grand Total	Rs.60,000			

APPENDIX-F PHOTOS



Figure 4 Participants filling questionnaire



Figure 5 Players while playing hockey



Figure 6 Male and female hockey players during a practice session

