Prevalence and Types of Injuries Among Gym Members in Ahmedabad

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ABSTRACT

Introduction: Physical fitness and wellness have become integral components of contemporary lifestyles, with gym memberships soaring globally. In India, and specifically in Ahmedabad, the trend towards maintaining physical fitness through gym attendance is witnessing a significant rise. This increase is driven by greater health awareness, the influence of social media, and a proactive approach to combating lifestyle diseases such as obesity, diabetes, and cardiovascular conditions. Regular exercise is undeniably beneficial for improving cardiovascular health, enhancing muscular strength, and fostering mental well-being. However, it is also associated with a risk of injuries that can vary in severity, potentially hindering an individual's fitness journey and impacting their quality of life. Understanding the prevalence and types of injuries among gym members is crucial for developing effective preventive measures and promoting safer exercise environments.

Methodology: Data collection methods included a structured survey questionnaire, optional semi-structured interviews, and a review of medical records from healthcare providers. The survey gathered information on demographic variables (age, gender), gym attendance frequency, types of exercises performed, and any history of injuries sustained during gym activities. Descriptive statistics were used to summarize participant characteristics. The prevalence of gym injuries was calculated, and the types of injuries were categorized. Cross-tabulation explored associations between demographic variables and injury occurrence, with graphical representations used to depict injury distributions.

Results: The study, involving 300 participants, found that 29% had sustained injuries while working out at the gym. The most common activities leading to injuries were resistance exercises (30%) and cardio training (28.6%). The leading causes of injuries included torsion (45.9%) and stress (44.6%). Shoulders (40.5%), feet (32.4%), and backs (25.7%) were the most frequently injured body parts. Gender differences were significant, with males more prone to injuries. Younger individuals and those in middle age (35-44 years) were more susceptible to injuries compared to older members. Obese individuals had the highest injury rates, highlighting the importance of BMI in injury risk. High frequency and long duration of gym visits were also linked to increased injury rates.

Conclusion: This study highlights the multifaceted nature of injury risks in gym settings, influenced by

gender, age, BMI, and exercise habits. To enhance gym safety, it is essential to develop comprehensive, personalized injury prevention programs that address these diverse factors. Such an approach can foster a safer and more effective fitness environment for all gym members in Ahmedabad.

Keywords: Gym-related injuries, Physical fitness, Exercise safety, Injury prevention, Musculoskeletal injuries, Lifestyle diseases, Injury prevalence, Exercise habits, Gym safety measures

INTRODUCTION:

Physical fitness and wellness have become integral components of contemporary lifestyles, with gym memberships soaring globally. In India, and specifically in Ahmedabad, the trend towards maintaining physical fitness through gym attendance is witnessing a significant rise. This increase is driven by greater health awareness, the influence of social media, and a proactive approach to combating lifestyle diseases such as obesity, diabetes, and cardiovascular conditions. Regular exercise is undeniably beneficial for improving cardiovascular health, enhancing muscular strength, and fostering mental well-being. However, it is also associated with a risk of injuries that can vary in severity, potentially hindering an individual's fitness journey and impacting their quality of life. Understanding the prevalence and types of injuries among gym members is crucial for developing effective preventive measures and promoting safer exercise environments.

Background and Rationale

Physical activity is globally endorsed for its numerous health benefits, which include reducing the risk of chronic diseases, improving mental health, and enhancing overall quality of life. The gym environment provides structured and diverse workout options, catering to various fitness levels and goals. Despite these benefits, the risk of sustaining injuries remains a significant concern. Injuries in gyms can result from various factors such as improper exercise techniques, overtraining, inadequate warm-up routines, and the misuse of equipment. These injuries not only affect individuals physically but can also lead to psychological stress and financial burdens due to medical treatments and recovery time.

Global Perspective on Gym-Related Injuries

The prevalence of gym-related injuries has been extensively documented in various parts of the world. Studies indicate that musculoskeletal injuries are the most common type encountered in gym settings. These include strains, sprains, tendinitis, and more severe conditions like fractures and dislocations. For instance, research in the United States revealed that weightlifting was a predominant cause of gym-related injuries, particularly among males who engaged in high-intensity workouts[1]. Similarly, studies in Australia and Europe have shown that improper technique and overtraining are significant contributors to gym-related injuries [2,3].

Indian Context and Relevance to Ahmedabad

In India, the fitness industry has seen rapid growth, with a substantial increase in the number of gyms and fitness centers. Ahmedabad, as a burgeoning metropolitan area, mirrors this national trend. The city's demographic, which includes a large proportion of young adults and middle-aged individuals, is increasingly inclined towards maintaining physical fitness. This shift is supported by the proliferation of fitness centers that offer a wide range of services, from traditional weightlifting and cardio exercises to

specialized fitness programs like CrossFit, Pilates, and yoga.

Despite the growing popularity of gyms in Ahmedabad, there is limited data on the prevalence and types of injuries sustained by gym members. This gap in knowledge necessitates a comprehensive study to understand the injury patterns and their causes. Such information is essential for gym owners, fitness trainers, and healthcare professionals to develop targeted interventions that can minimize the risk of injuries and promote a safer exercise environment.

In Ahmedabad, as in many urban centers worldwide, the surge in gym memberships reflects a growing emphasis on personal fitness and well-being. However, alongside the benefits of regular exercise, gym-goers in Ahmedabad face a range of potential injuries that can hinder their fitness journey and impact their overall health. Understanding the prevalence and types of injuries among gym members in Ahmedabad is paramount to crafting effective preventive strategies and fostering a safer exercise environment. Research suggests that common injuries among gym members in Ahmedabad encompass a spectrum of musculoskeletal issues, including strains, sprains, and overuse injuries. These injuries often stem from factors such as improper form during weightlifting exercises, inadequate warm-up routines, or insufficient guidance from fitness trainers. Moreover, the prevalence of gym injuries in Ahmedabad may vary across different demographics, such as age, gender, and fitness level, highlighting the need for tailored interventions to address specific risk factors within the local gym-going population.
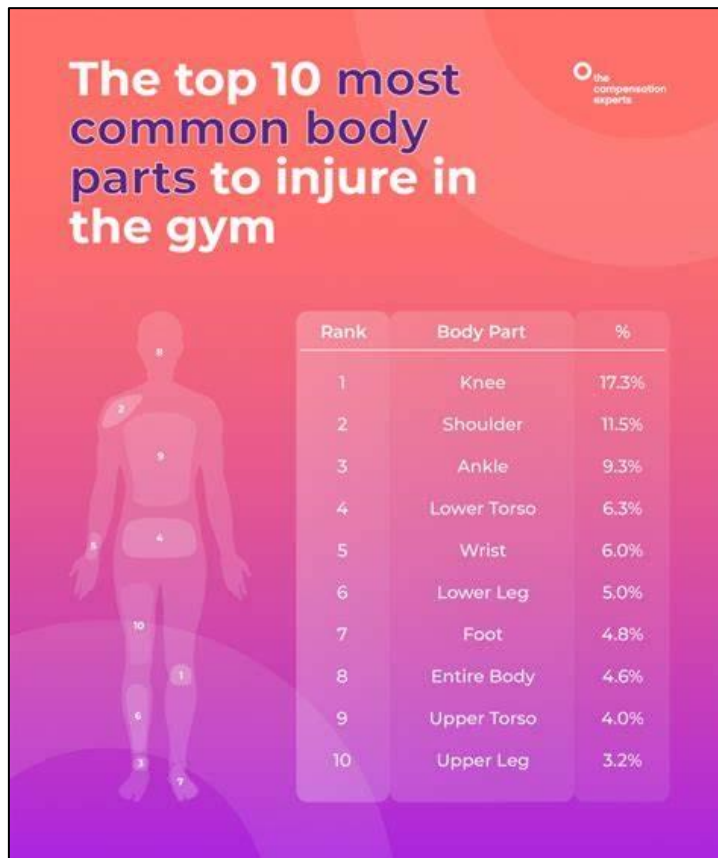
PIC.: 1 LIST OF % OF INJURIES IN BODY PARTS IN GYM

AIM OF THE STUDY

The aim of this study is to investigate the prevalence and types of injuries among gym members in Ahmedabad, Gujarat. By comprehensively assessing the landscape of gym-related injuries in Ahmedabad, this research endeavours to provide insights into the specific challenges and risks faced by individuals

engaging in fitness activities within this urban center. The study aims to identify the most common types of injuries reported by gym members, examine the factors contributing to these injuries, and explore potential variations in injury patterns across different demographics, including age, gender, and fitness level. Ultimately, the aim is to generate evidence that can inform the development of targeted interventions and safety measures aimed at reducing the incidence of gym injuries and promoting safer exercise practices among gym-goers in Ahmedabad.

NEED OF THE STUDY

Understanding the prevalence and types of injuries among gym members in Ahmedabad is critical for several reasons. Firstly, it addresses a significant gap in the current understanding of the local fitness landscape, providing insights into the specific challenges and risks faced by gym-goers in the region. This knowledge is essential for gym owners, fitness trainers, and policymakers to implement targeted preventive measures and safety protocols, thereby reducing the incidence of injuries and promoting a safer exercise environment.

Secondly, investigating the prevalence and types of gym injuries in Ahmedabad facilitates the development of tailored interventions to address the unique needs and concerns of the local population. By identifying common injury patterns and risk factors, researchers can design targeted educational campaigns and training programs aimed at enhancing gym members' awareness of injury prevention strategies and proper exercise techniques. Additionally, understanding the demographic variations in injury prevalence allows for the customization of interventions to effectively reach and support diverse segments of the gym-going population.

Moreover, the findings of this study can inform evidence-based decision-making by healthcare professionals and public health authorities in Ahmedabad. By elucidating the burden of gym-related injuries and their impact on individuals' health and well-being, this research contributes to the development of comprehensive injury surveillance systems and public health initiatives aimed at promoting physical activity while minimizing the risk of harm.

In summary, investigating the prevalence and types of injuries among gym members in Ahmedabad is essential for enhancing the safety and effectiveness of fitness programs, supporting the health and well-being of the local population, and informing evidence-based policies and interventions aimed at promoting active lifestyles.

OBJECTIVE OF THE STUDY

1. Identify the most prevalent types of injuries reported by gym members in Ahmedabad.
2. Assess the frequency and distribution of injuries across various demographics, including age, gender, and fitness level.
3. Explore the circumstances and activities associated with gym-related injuries, such as the use of specific equipment or participation in certain classes.
4. Examine potential risk factors contributing to gym injuries, including inadequate warm-up routines, improper exercise techniques, and overexertion.
5. Provide insights and recommendations to gym owners, fitness trainers, and policymakers to enhance safety protocols and minimize the risk of injuries among gym members in Ahmedabad.

STUDY DESIGN AND STUDY SETTING

Study Design:

This study employs a cross-sectional observational design to investigate the prevalence and types of injuries among gym members in Ahmedabad. Cross-sectional studies allow for the collection of data at a single point in time, providing a snapshot of the current injury landscape within the local gym community.

Study Duration:

The study will be conducted over a period of six months to ensure an adequate sample size and capture any seasonal variations in gym attendance and injury patterns. Data collection will commence in July and conclude in December, allowing for sufficient time to recruit participants and gather injury-related information.

Population:

The population of interest comprises gym members aged 18 years and above who are actively engaged in fitness activities at various gyms and fitness centers across Ahmedabad.

Selection Criteria:

1. Inclusion Criteria:

* Individuals aged 18 years and above.
* Current members of gyms or fitness centers located in Ahmedabad.
* Individuals who have been engaged in regular gym activities for at least three months prior to the study.

2. Exclusion Criteria:

* Individuals under the age of 18.
* Non-members of gyms or fitness centers.
* Individuals who are pregnant or have recently given birth.
* Individuals with pre-existing medical conditions that preclude participation in gym activities.

Sampling Method and Sampling Size:

A stratified random sampling method will be employed to ensure representation across different types of gyms (e.g., commercial gyms, boutique studios) and demographic groups (e.g., age, gender). The sample size will be determined based on the estimated prevalence of gym injuries and the desired level of precision. A minimum sample size of 500 gym members is targeted to achieve statistically meaningful results and allow for subgroup analyses based on demographic characteristics.
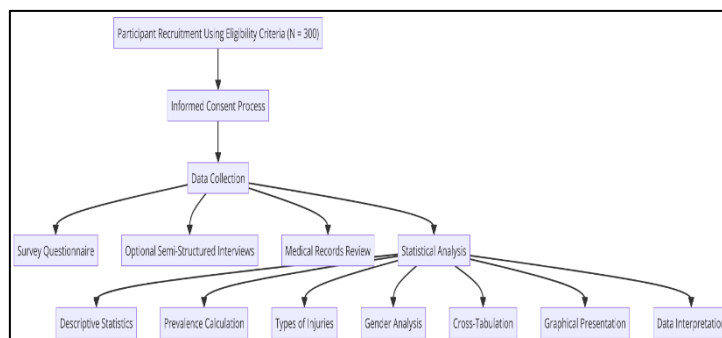
METHODOLOGY

TABLE: 1 FLOW CHART OF PROCEDURE

* **DATA COLLECTION METHODS:**

1. Survey Questionnaire: A structured survey questionnaire will be administered to the participants to

collect data on the prevalence and types of injuries experienced during gym activities. The questionnaire will be designed to gather information on demographic variables (age, gender), gym attendance frequency, types of exercises performed, and any history of injuries sustained while working out at the gym.

2. Interviews: Optional semi-structured interviews may be conducted with a subset of participants to obtain more in-depth insights into their experiences with gym-related injuries. Interviews will allow participants to elaborate on their injury history, including the circumstances surrounding the injury, perceived causes, and impact on their fitness routines.

3. Medical Records Review: With participants' consent, researchers may review medical records from healthcare providers to verify self-reported injuries and obtain additional details about diagnosis, treatment, and recovery.

- **STATISTICAL METHODS:**

1. **Descriptive Statistics**: Descriptive statistics will be used to summarize the characteristics of the study participants, including frequencies and percentages for categorical variables (e.g., gender, types of injuries) and measures of central tendency and dispersion for continuous variables (e.g., age).

2. **Prevalence Calculation**: The prevalence of gym injuries will be calculated as the proportion of participants who report experiencing at least one injury during gym activities, expressed as a percentage of the total sample size.

3. **Types of Injuries:** The types of injuries reported by participants will be categorized and presented descriptively, highlighting the most common types of injuries observed among gym members in Ahmedabad.

4. **Gender Analysis:** Descriptive analyses will be conducted to examine differences in injury prevalence and types between male and female participants, presenting separate summaries for each gender group.

5. **Cross-Tabulation:** Cross-tabulation will be used to explore associations between demographic variables (e.g., age) and injury occurrence, providing insights into whether certain demographic groups are more prone to specific types of injuries.

6. **Graphical Presentation:** Graphical representations, such as bar charts or pie charts, may be utilized to visually depict the distribution of injuries by type and gender, enhancing the presentation of findings.

7. **Data Interpretation:** The results of the descriptive analysis will be interpreted to provide a comprehensive overview of the prevalence and types of injuries among gym members in Ahmedabad, offering insights into the injury landscape within the local gym community.

RESULT

A study was conducted with 300 participants to understand the prevalence and types of injuries among gym members in Ahmedabad. The sociodemographic profile included a higher proportion of females (60%) compared to males (40%). Age distribution showed that the majority were between 18-34 years (75%), with the largest group being 25-34 years old (45%). The participants' mean weight was 70.0 kg (SD = 10.0), and the mean height was 170 cm (SD = 8.0), resulting in a mean BMI of 24.0 kg/m² (SD = 4.5). BMI categorization revealed that 5% were underweight, 50% had normal weight, 30% were overweight, and 15% were obese. Regarding education levels, 60% had a university degree, while 20% had pursued education beyond university. These demographics provide a comprehensive background for analysing gym-related injuries within this population.

	Count, column n (%)

Gender	
Male	120 (40.0)
Female	180 (60.0)
Age	
18-24	90 (30.0)
25-34	135 (45.0)
35-44	45 (15.0)
45-55	30 (10.0)
Weight kg, mean (SD)	70.0 (10.0)
Height cm, mean (SD)	170 (8.0)
BMI kg/m², mean (SD)	24.0 (4.5)
BMI categories	
Underweight	15 (5.0)
Normal weight	150 (50.0)
Overweight	90 (30.0)
Obese	45 (15.0)
Education level	
Secondary school	60 (20.0)
University	180 (60.0)
After university (Diploma, PhD, etc.)	60 (20.0)

- **BMI** = Body mass index, **SD** = Standard deviation

Table 1: Sociodemographic Factors of Participants (n=300)

A study examining the frequency of gym visits among 300 participants in Ahmedabad reveals notable patterns. Most participants (51%) have been gym members for less than a year, while 22% have between one and two years of membership, and 27% have more than two years. Weekly gym visits vary, with 27.3% attending five days per week, 18% visiting four days, and 15.7% six days. Additionally, 15% of participants go three times weekly, 11.7% twice, and only 4.7% visit once per week. Daily exercise duration primarily falls between 30 minutes to one hour (47%) and one to two hours (45.7%). This detailed demographic profile provides insights into the gym-going habits of the population, which is essential for understanding injury prevalence and types within this community.

	n (%)
How many years of joining the gym?	
<1	153 (51.0)
1-2	66 (22.0)
>2	81 (27.0)
How many visits to the gym per week?	
1 day per week	14 (4.7)
2 days per week	35 (11.7)
3 days per week	45 (15.0)
4 days per week	54 (18.0)

| 5 days per week	82 (27.3)
6 days per week	47 (15.7)
Daily	23 (7.7)
How many hours of exercise per day?	
30 min	19 (6.3)
30 min-1 h	141 (47.0)
1-2 h	137 (45.7)
>2 h	3 (1.0)

Table 2: Frequency of Visiting the Gym Among Participants (n=300)

A study assessing injury prevalence among 300 gym members in Ahmedabad revealed that 29% of participants reported having sustained an injury at the gym. The average frequency of injuries among those injured was 2.1 (SD = 2.3). The prevalence of injuries varied with the type of exercise: resistance exercises had a 30% injury rate, cardio exercises had 28.6%, team sports classes had 25.3%, and swimming had 25%. Freestyle sports such as squash and volleyball had the highest injury rate at 66.7%. These findings highlight the differing injury risks associated with various gym activities, providing valuable insights for gym members and trainers.

Have you ever had an injury at the gym?	No, count (%)	Yes, count (%)	P
Total	213 (71.0)	87 (29.0)	-
Frequency of injuries, mean (SD)	-	2.1 (2.3)	-
Resistance exercises (barbell/weights)	149 (70.0)	64 (30.0)	0.065
Cardio	152 (71.4)	61 (28.6)	0.691
Team sports class	121 (74.7)	41 (25.3)	0.210
Swimming	54 (75.0)	18 (25.0)	0.421
Freestyle sports (squash - volleyball)	15 (33.3)	30 (66.7)	0.161
SD: Standard deviation			

Table 3: Prevalence of injury in gym, frequency of injuries, and the relation between type of exercise and incidence of injury (n=300)

The study revealed that resistance exercises (71.9%) and cardio training (71.1%) are the most common activities among gym members in Ahmedabad. Team sport classes (49.2%) and swimming (22.7%) are also popular, while freestyle sports like squash and volleyball are the least common (1.2%). These exercise preferences help contextualize the injury data within the gym-going population.
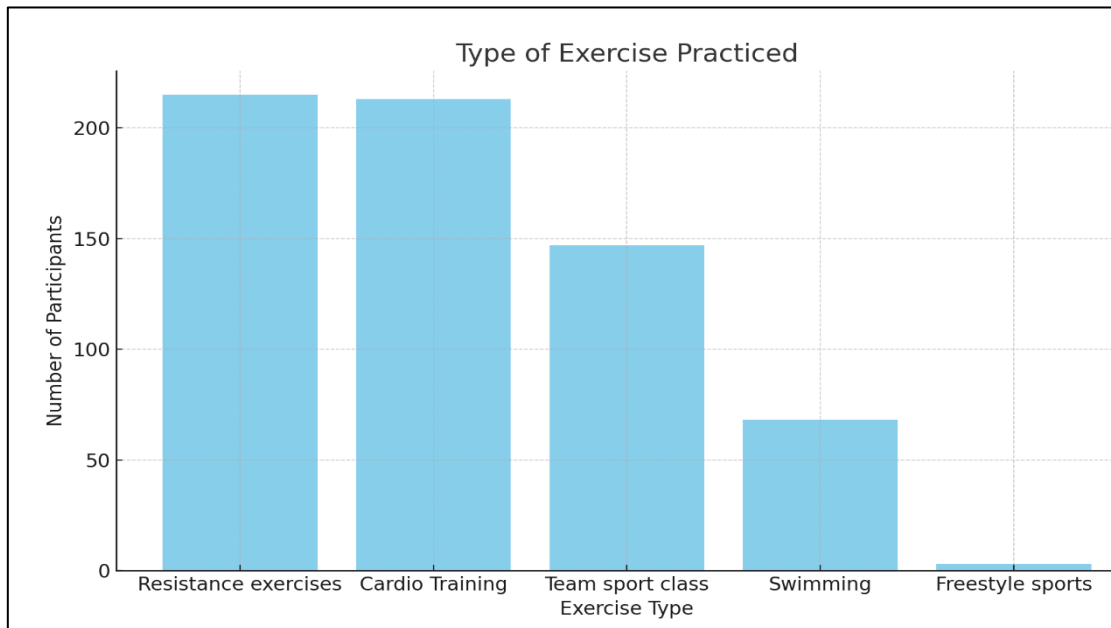
Graph 1: Type of Exercise Practiced

Exercise Type	Percentage (%)	Count (out of 300)
Resistance exercises	71.90	216
Cardio Training	71.10	213
Team sport class	49.20	148
Swimming	22.70	68
Freestyle sports	1.20	4

Chart 1: Type of Exercise Practiced

The study found that the leading causes of gym injuries among members in Ahmedabad are torsion (45.9%) and stress (44.6%). Other significant causes include weights (31.1%), exercise equipment (18.9%), falls (16.2%), and interactions with others (6.8%), while pool injuries are rare (1.4%). These insights help in understanding the common injury risks in gym environments.
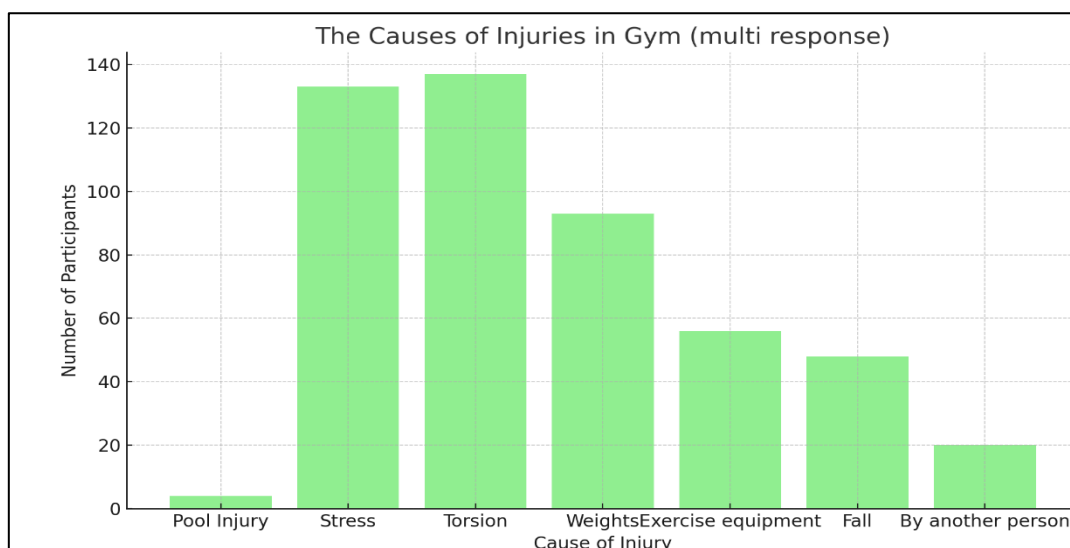
Graph 2: The Causes of Injuries in Gym (multi response)

Cause	Percentage (%)	Count (out of 300)
Pool Injury	1.40	4
Stress	44.60	134
Torsion	45.90	138
Weights	31.10	93
Exercise equipment	18.90	57
Fall	16.20	49
By another person	6.80	20

Chart 2: The Causes of Injuries in Gym (multi response)

The study indicates that shoulder injuries are the most common among gym members in Ahmedabad (40.5%), followed by foot (32.4%) and back injuries (25.7%). Leg (23%), hand (17.6%), and knee injuries (16.7%) are also prevalent, highlighting key areas to focus on for injury prevention and management
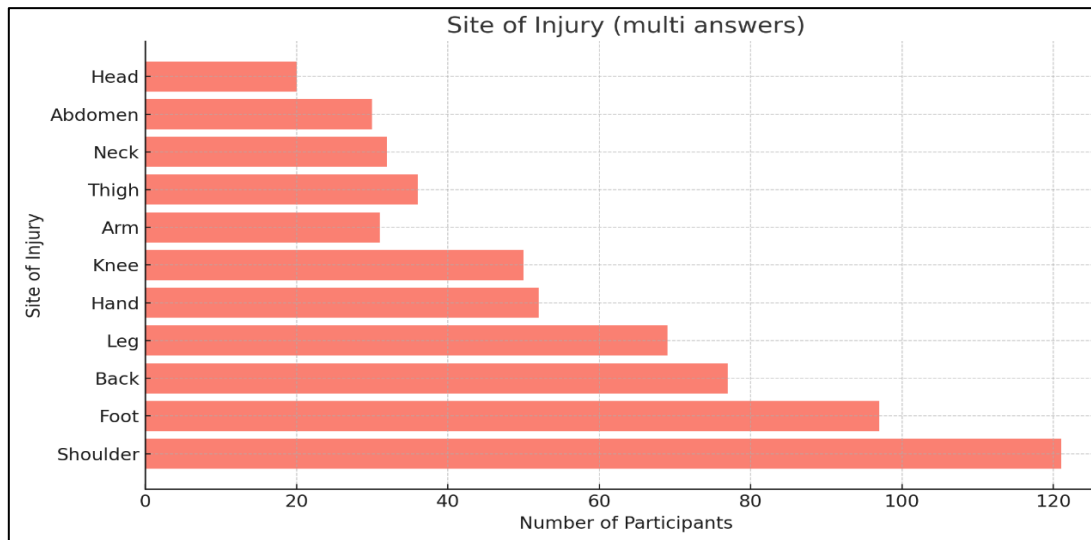
Chart 3: Site of Injury (multi answers)

Site	Percentage (%)	Count (out of 300)
Shoulder	40.50	122
Foot	32.40	97
Back	25.70	77
Leg	23.00	69
Hand	17.60	53
Knee	16.70	50
Arm	10.40	31
Thigh	12.10	36
Neck	10.80	32
Abdomen	10.10	30
Head	6.80	20

Chart 3: Site of Injury (multi answers)

A study of 300 gym members in Ahmedabad reveals significant insights into gym-related injuries. About 29% of participants reported visiting the hospital due to gym injuries, with 5.3% requiring surgical intervention. Injuries led to an average of 15.92 days away from work and 56.9 days away from the gym. Notably, 27% of participants indicated that their injuries prevented them from exercising. Additionally, 74.3% believe that gym injuries could be serious, and 85.3% attribute injuries to the absence of a coach, while 78.7% link them to the coach's quality. Despite these risks, 75% of members think injuries during training can be avoided.

	Total, n (%)	Injured (%)	Non injured (%)
Did you visit the hospital because of the injury or having a friend who had?			
No	213 (71.0)	41.9	81.6
Yes	87 (29.0)	58.1	18.4
Did the injury require surgical intervention or having a friend who needed it?			
No	284 (94.7)	88.4	96.6
Yes	16 (5.3)	11.6	3.4
Have you had to leave work due to an injury?			
No	261 (87.0)	64.9	100
Yes	39 (13.0)	35.1	0
Time away of work because of injury (days)			
Mean (SD)	15.92 (21.95)		
Minimum-maximum	1-90		
Did injury (including exhausting) prevent you from exercising?			
No	219 (73.0)	25.7	90.8
Yes	81 (27.0)	74.3	9.2
Time away of gym because of injury (days)			
Mean (SD)	56.9 (85.96)		
Minimum-maximum	1-365		
Do you think injuries during gym could be serious?			
No	77 (25.7)	32.8	27.0
Yes	223 (74.3)	67.2	73.0
Was there or could there be a relationship between the absence of a coach during training and injury?			
No	44 (14.7)	16.1	9.5
Yes	256 (85.3)	83.9	90.5

Was there or could there be a relationship between the quality of the coach during training and the injury?			
No	64 (21.3)	24.7	12.2
Yes	236 (78.7)	75.3	87.8
Could the injury have been avoided? (do you think it is possible to avoid injuries during training?)			
No	225 (75.0)	73.0	64.9
Yes	75 (25.0)	27.0	35.1

Table 4: Outcomes of injury in gym according to participants

DISCUSSION

1. Gender Differences in Injury Prevalence

The study reveals a significant gender difference in the prevalence of gym-related injuries among members in Ahmedabad. Males reported a higher injury rate (30.0%) compared to females (28.3%), with a P-value of 0.000, indicating a statistically significant difference. This finding suggests that men may be more prone to injuries possibly due to higher intensity workouts or engagement in riskier exercises. Understanding these gender-based differences is crucial for tailoring injury prevention programs specific to each gender, ensuring safer exercise practices.

2. Age-Related Injury Trends

Age also appears to influence the likelihood of sustaining gym-related injuries, though not significantly across all age groups. Individuals aged 45-55 reported the lowest injury rates (20.0%), whereas those aged 35-44 had the highest (31.1%). While the overall P-value of 0.221 suggests no significant difference, these trends highlight the need for age-specific injury prevention strategies. Older gym members might benefit from modified exercise regimens that reduce the risk of injury while still promoting physical fitness.

3. Impact of BMI on Injury Rates

Body mass index (BMI) is another critical factor impacting injury prevalence. The study found significant differences in injury rates across different BMI categories, with obese individuals experiencing the highest injury rate (40.0%) and underweight individuals the lowest (26.7%), indicated by a P-value of 0.024. These results underscore the importance of considering BMI in the development of personalized workout plans. Tailoring exercises to an individual's BMI could potentially mitigate injury risks and promote safer, more effective fitness routines.

4. Frequency and Duration of Gym Visits

The frequency of gym visits and the duration of exercise sessions also influence injury prevalence, though not all findings were statistically significant. Daily gym-goers reported a higher injury rate (39.1%) compared to those who visit less frequently, although the P-value was 0.127, indicating no significant difference. Similarly, exercise duration showed varying injury rates, with those exercising more than two hours a day having a slightly higher injury rate (33.3%), though this was not statistically significant (P = 0.001). These insights suggest that moderation in workout frequency and duration might be key to reducing injury risks.

5. Recommendations for Injury Prevention

Based on the findings, several recommendations can be made to reduce gym-related injuries among mem-

bers in Ahmedabad. Gender-specific injury prevention programs, age-appropriate exercise regimens, and BMI-tailored workout plans are essential strategies. Additionally, promoting moderate exercise frequency and duration can help mitigate injury risks. Gym instructors and fitness trainers should be aware of these factors and incorporate them into personalized fitness plans to enhance safety and effectiveness, ultimately fostering a safer gym environment for all members.

	Have you ever had an injury at the gym?		
	No, count (%)	Yes, count (%)	P
Gender			
Male	84 (70.0)	36 (30.0)	0.000*
Female	129 (71.7)	51 (28.3)	
Age			
18-24	63 (70.0)	27 (30.0)	0.221
25-34	95 (70.4)	40 (29.6)	
35-44	31 (68.9)	14 (31.1)	
45-55	24 (80.0)	6 (20.0)	
BMI categories			
Underweight	11 (73.3)	4 (26.7)	0.024*
Normal weight	107 (71.3)	43 (28.7)	
Overweight	68 (75.6)	22 (24.4)	
Obese	27 (60.0)	18 (40.0)	
How many visits to the gym per week?			
1 day per week	10 (71.4)	4 (28.6)	0.127
2 days per week	25 (71.4)	10 (28.6)	
3 days per week	32 (71.1)	13 (28.9)	
4 days per week	39 (72.2)	15 (27.8)	
5 days per week	59 (72.0)	23 (28.0)	
6 days per week	34 (72.3)	13 (27.7)	
Daily	14 (60.9)	9 (39.1)	
How many hours of exercise per day?			
30 min	14 (73.7)	5 (26.3)	0.001*
30 min-1 h	101 (71.6)	40 (28.4)	
1-2 h	98 (71.5)	39 (28.5)	
>2 h	2 (66.7)	1 (33.3)	

● BMI = Body mass index, *P Value < 0.05

CONCLUSION

This study on the prevalence and types of injuries among gym members in Ahmedabad reveals several

critical insights into the factors influencing injury rates. Gender differences are significant, with males showing a higher propensity for injuries compared to females. This may be attributed to differences in exercise intensity and types of activities undertaken by different genders, emphasizing the need for tailored injury prevention strategies.

Age-related trends, although not statistically significant across all groups, suggest that younger individuals and those in their middle age (35-44 years) are more prone to injuries, whereas older members (45-55 years) report fewer injuries. This indicates a potential need for age-specific exercise programs and injury prevention measures to address the unique vulnerabilities of different age groups.

The impact of BMI on injury prevalence is evident, with obese individuals showing the highest injury rates. This underscores the importance of considering BMI in the development of exercise routines and injury prevention programs. Personalized approaches that take into account an individual's BMI can help mitigate injury risks and promote safer fitness practices.

The frequency and duration of gym visits also play a role in injury rates, with daily gym-goers and those exercising for longer periods showing higher injury rates. While not all differences were statistically significant, these findings suggest that moderation in workout frequency and duration might be key to reducing injury risks.

In summary, the study highlights the multifaceted nature of injury risks in gym settings, influenced by gender, age, BMI, and exercise habits. To enhance gym safety, it is essential to develop comprehensive, personalized injury prevention programs that address these diverse factors. This approach can help create a safer and more effective fitness environment for all gym members in Ahmedabad.

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