



**ALLAY**<sup>™</sup>  
THERAPEUTICS

Duke



MASTER *of* ENGINEERING  
MANAGEMENT

Ananya Roy Chowdhury  
Engineering Management  
Duke University

# AGENDA

- Project Objective and Problem Statement
- Market Research Methodology
- Questionnaire Design
- Analysis of Survey Responses
- Interview Observations
- Recommendations





# Market Assessment for ATX-101: The Patient Experience following Total Knee Arthroplasty

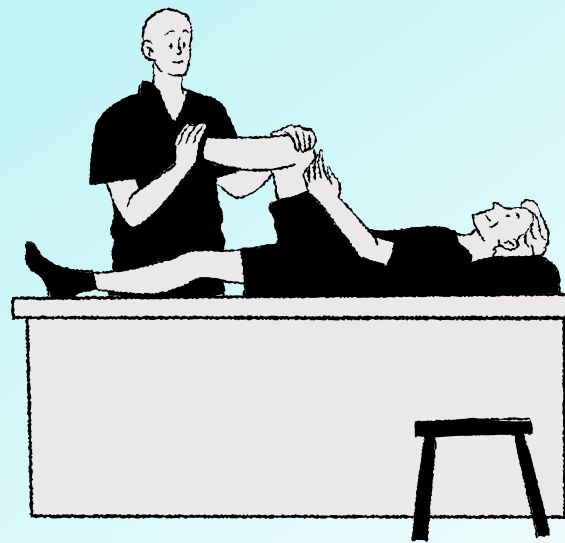
“ Oh, after you have this (TKA), let me tell you I've had seven surgeries before this one and this one is... You can't forget this one! ”

## Problem Statement

Conduct market research to understand



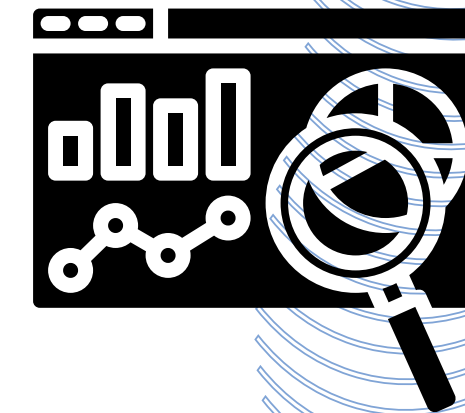
Pre-surgery expectations



Post-op pain management journey



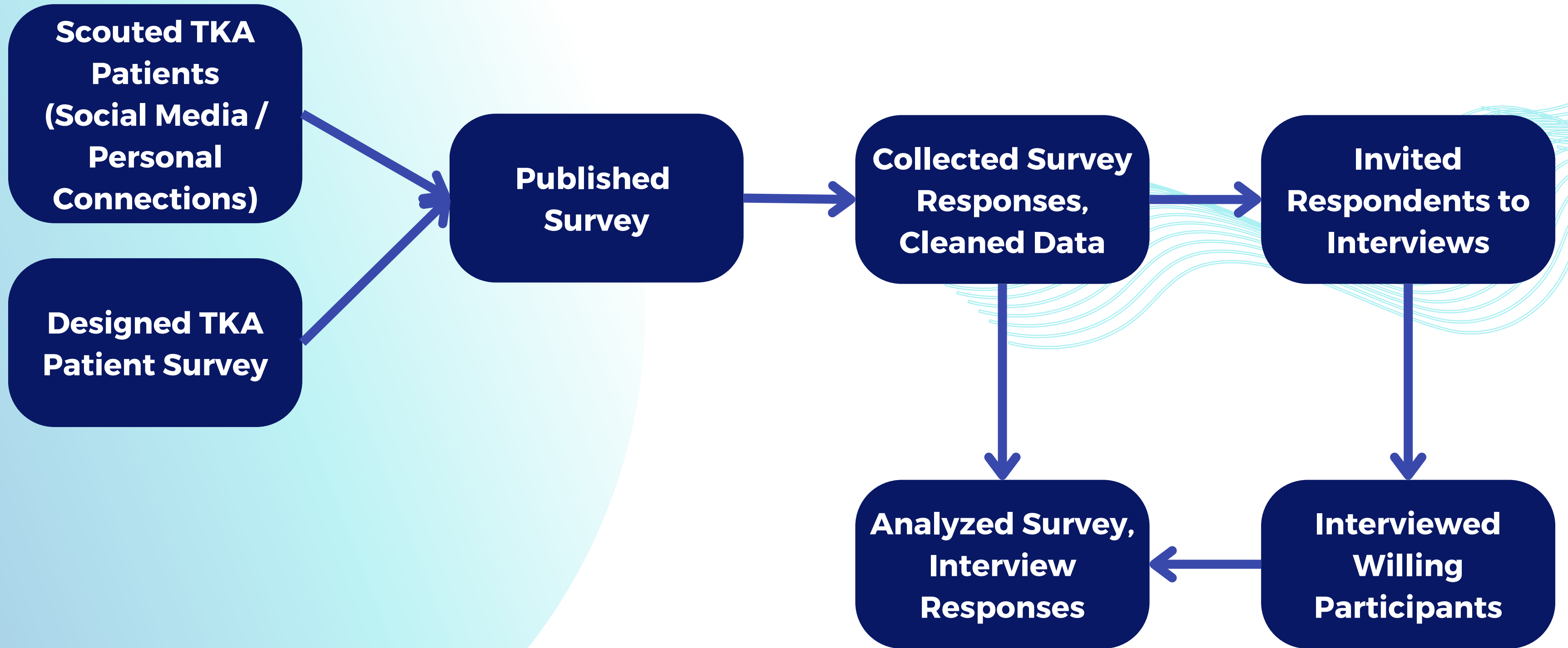
Recovery experience



Opinion on opioid use and alternate pain management techniques

for TKA patients

# MARKET RESEARCH METHODOLOGY





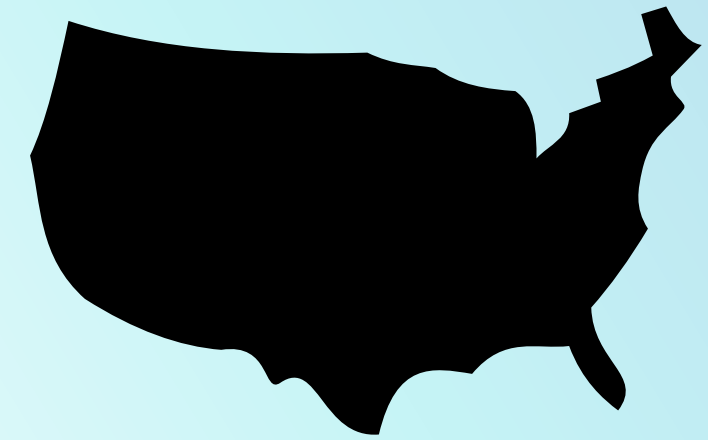
# TARGET GROUP



**Patients / former patients /  
sufferers of knee problems**

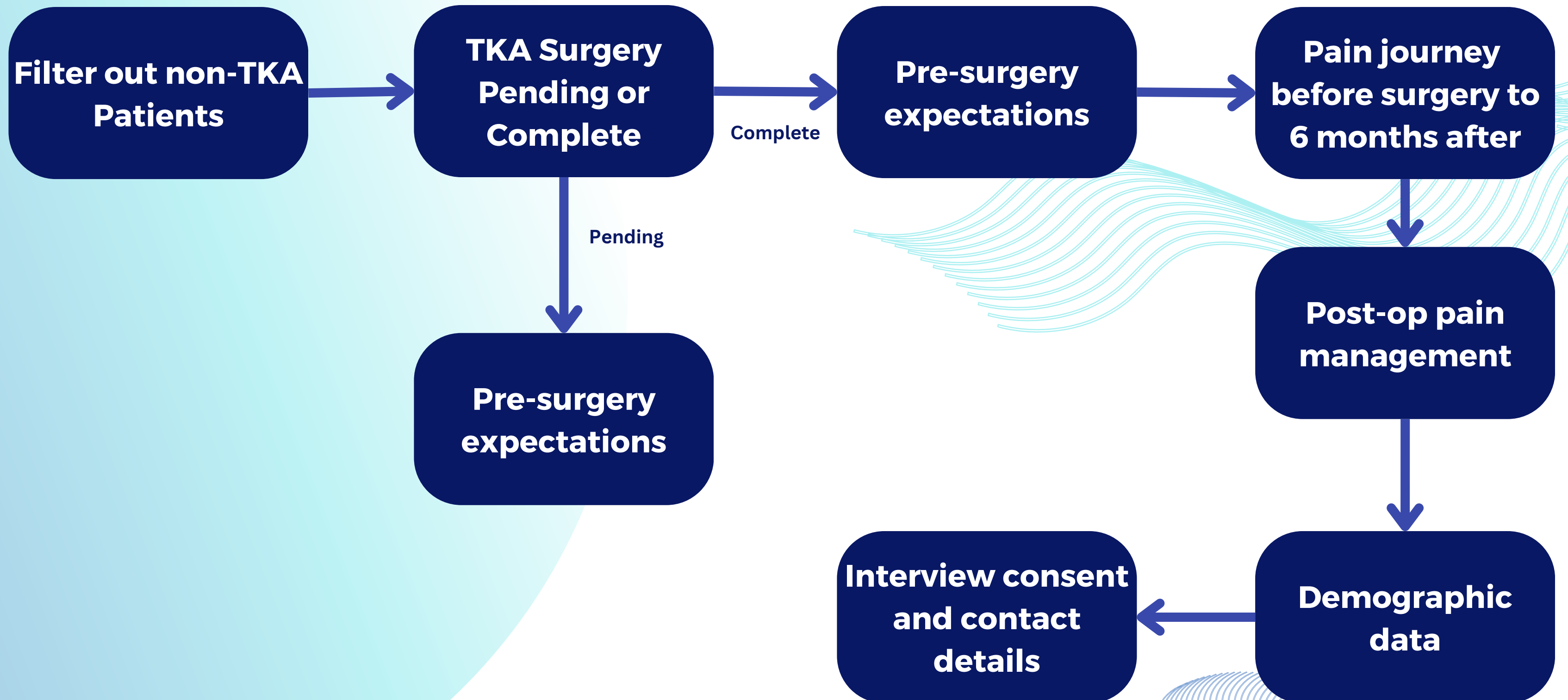


**Primarily those who have  
undergone the TKR surgery**



**Primarily based in  
the US**

# SURVEY QUESTIONNAIRE DESIGN

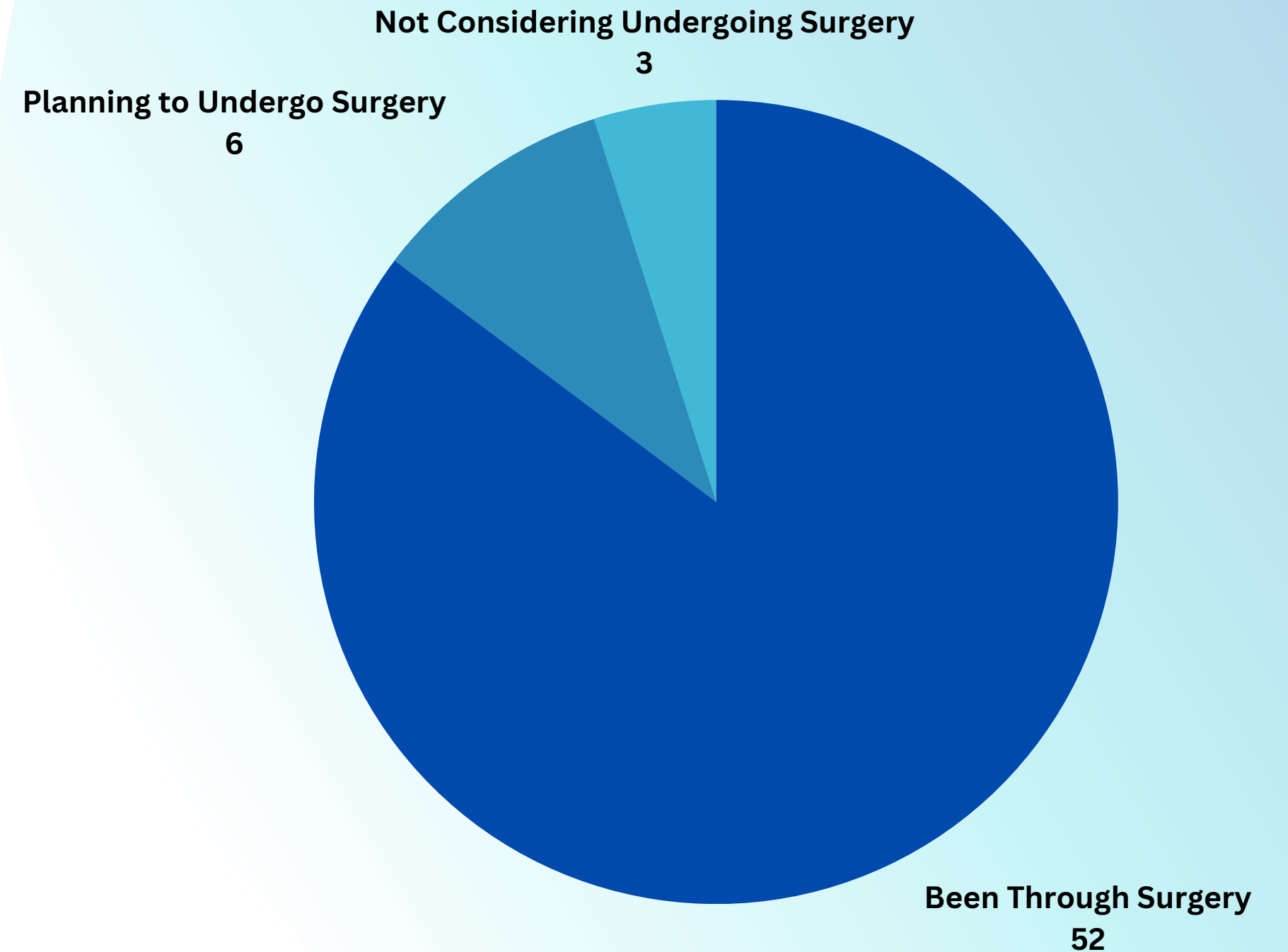




# ANALYSIS OF RESPONSES

## 61 Responses

### PATIENT BREAKDOWN



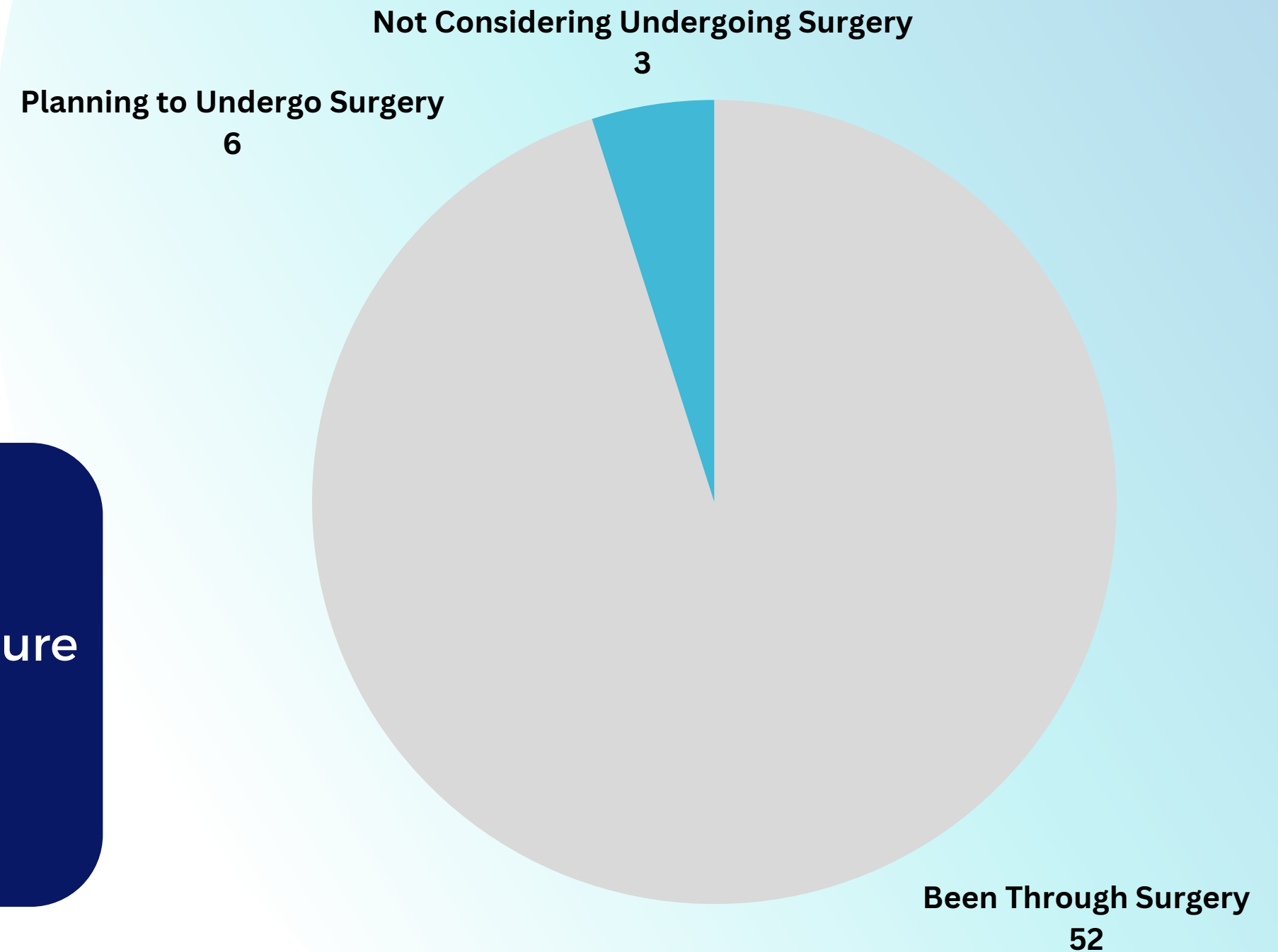
# NOT CONSIDERING TKA

Average pain indicated by respondents

4

## Reason for not considering TKA

- Condition not severe enough to justify the procedure
- Anticipation of the pain in the procedure
- Cost of the surgery
- Had another surgery





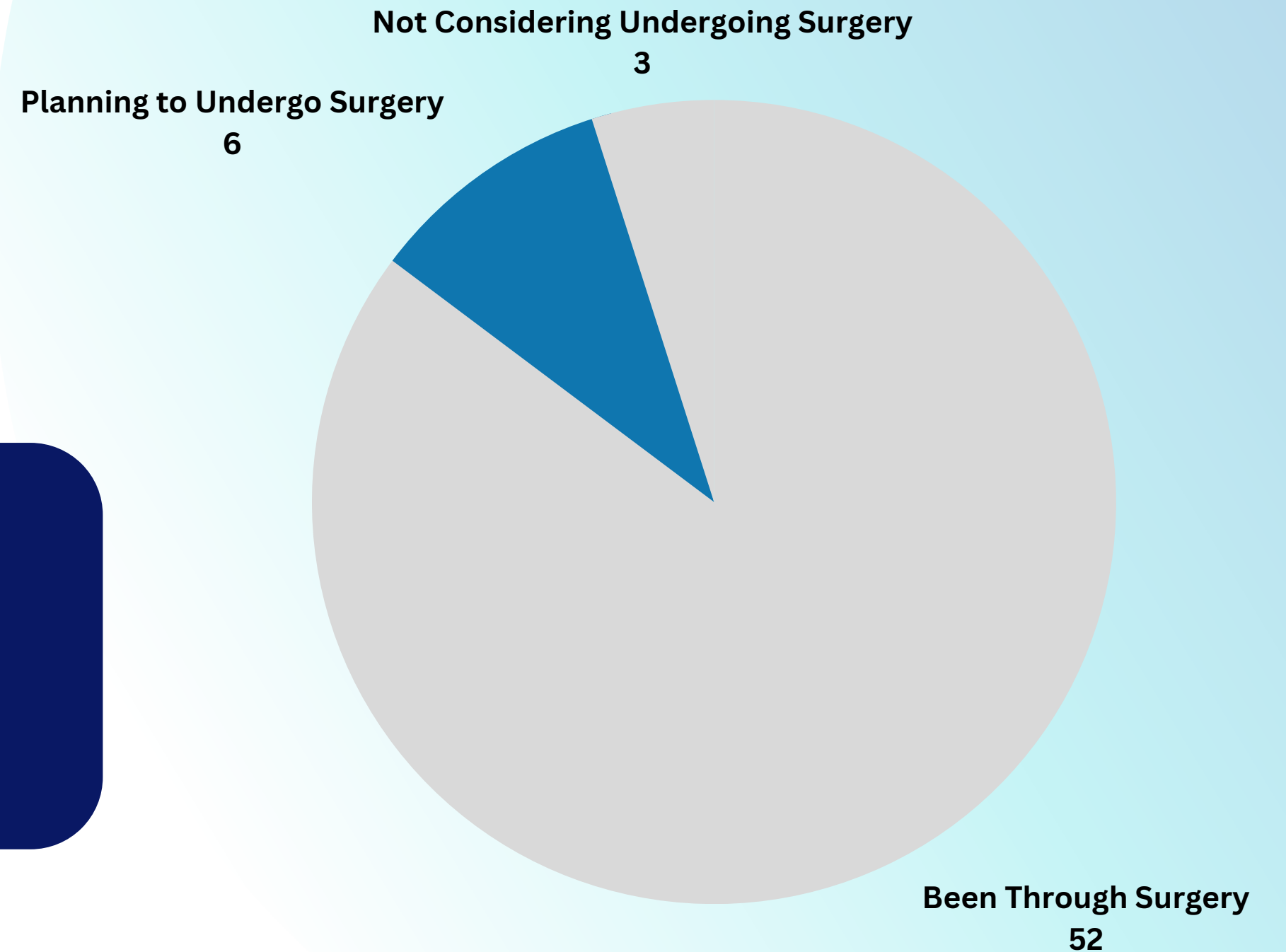
# PLANNING TO UNDERGO TKA

Average pain indicated by respondents

**4.8**

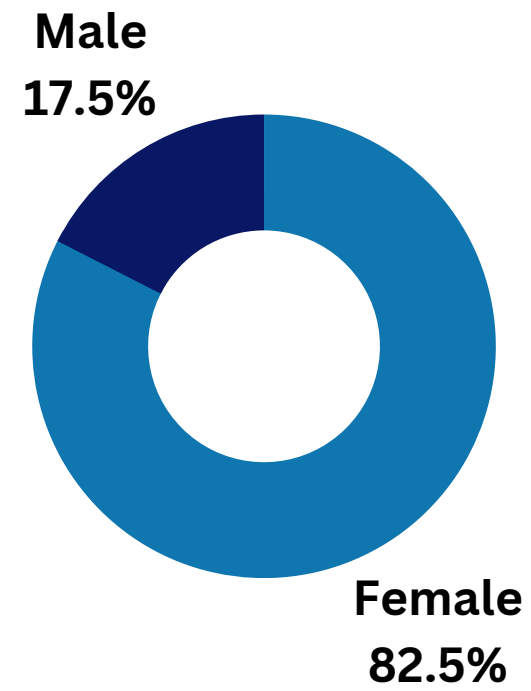
## Opinions regarding upcoming TKA procedure

"Dreaded but Needed"  
"Scared but Relieved"  
Excited | Anxious | Optimistic

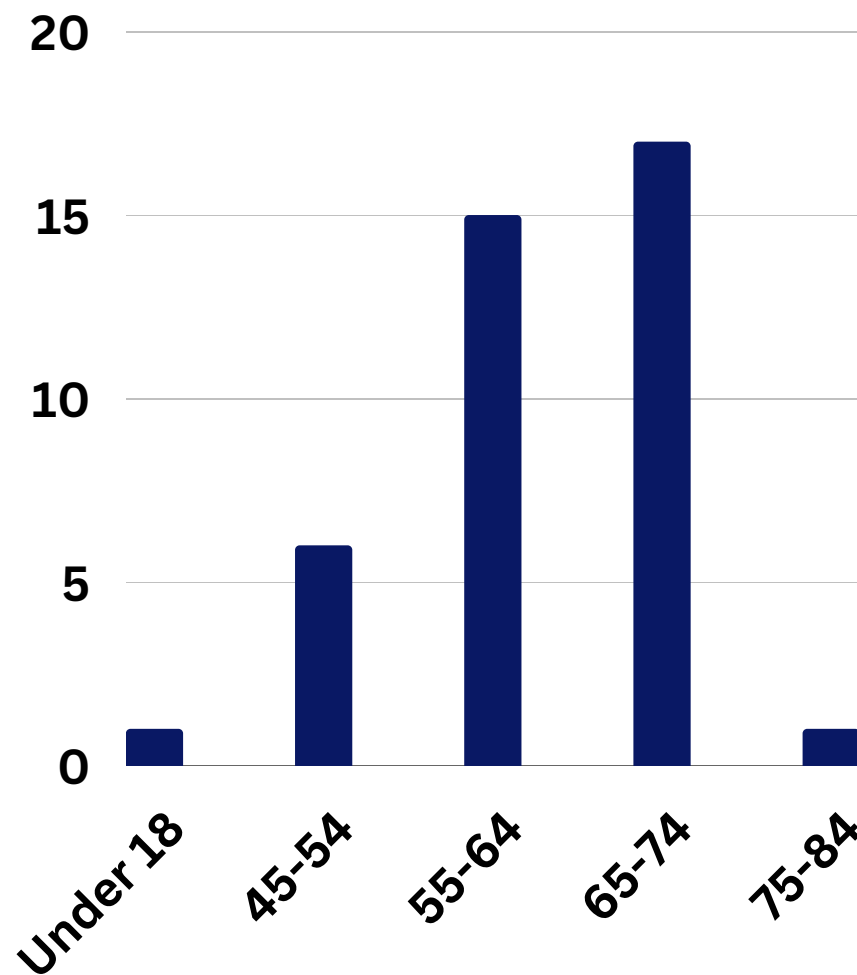


# PATIENTS WHO WENT THROUGH TKA PROCESS

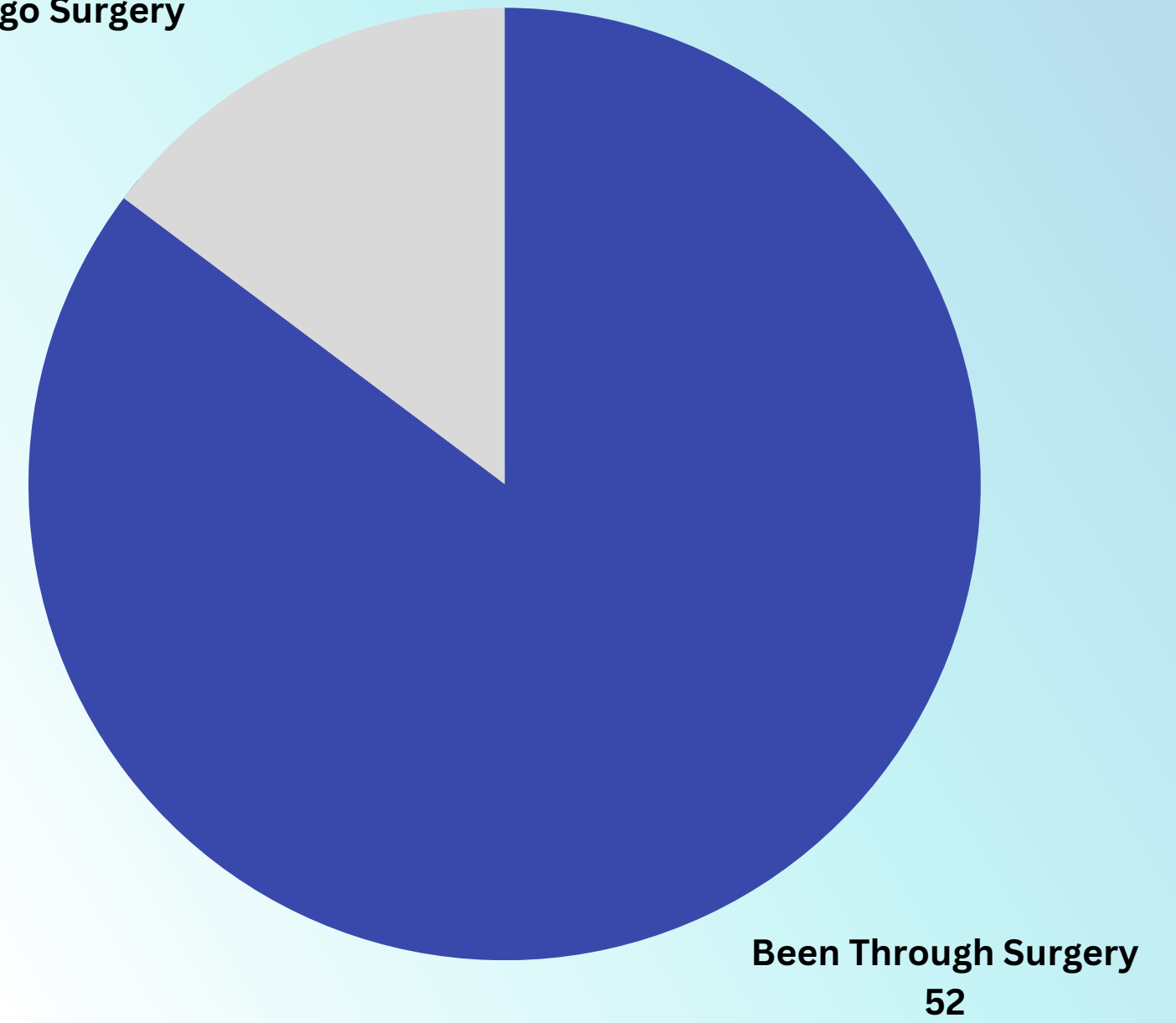
Respondents by gender



Respondents by age



Planning to Undergo Surgery 6  
Not Considering Undergoing Surgery 3



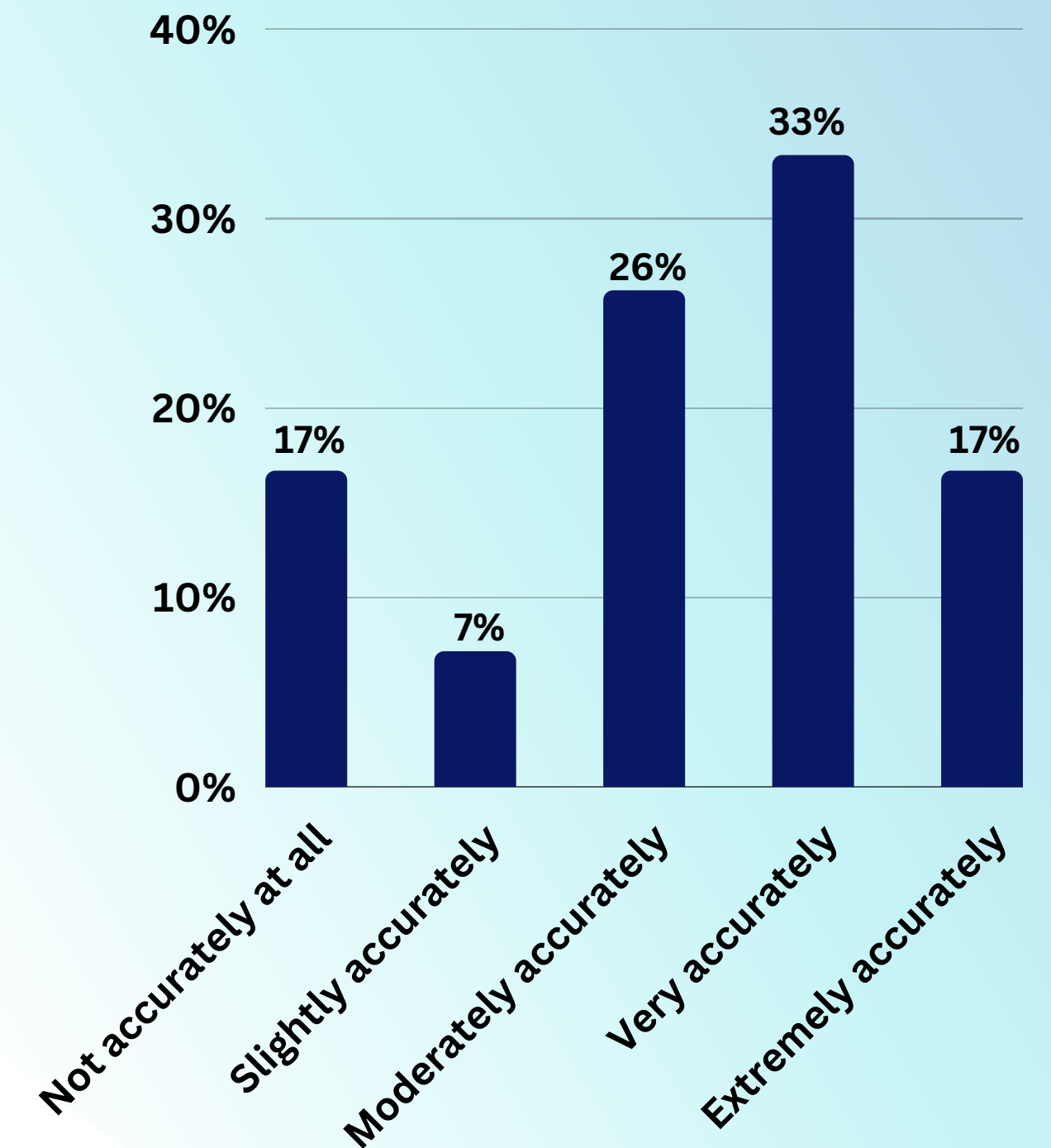




# HEALTH CARE FACILITY PREFERENCES AND PAIN AWARENESS IN PATIENTS

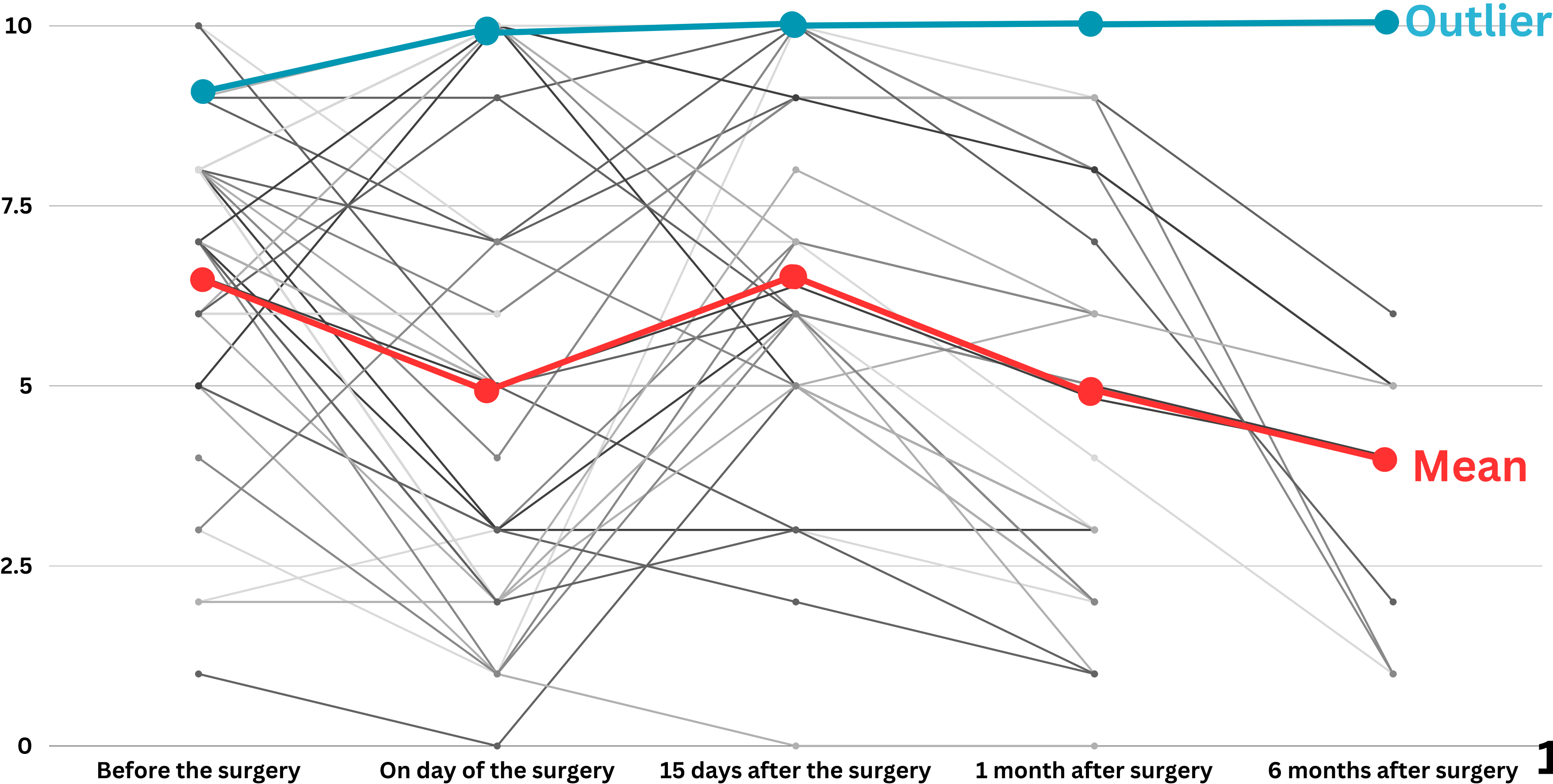
Type of healthcare facility	No. of respondents
Regional Hospital	19
University Hospital	4
Orthopaedic Clinic	8
Surgical Center	5
Others	6

How accurately do patients believe they were informed about the post-op pain?

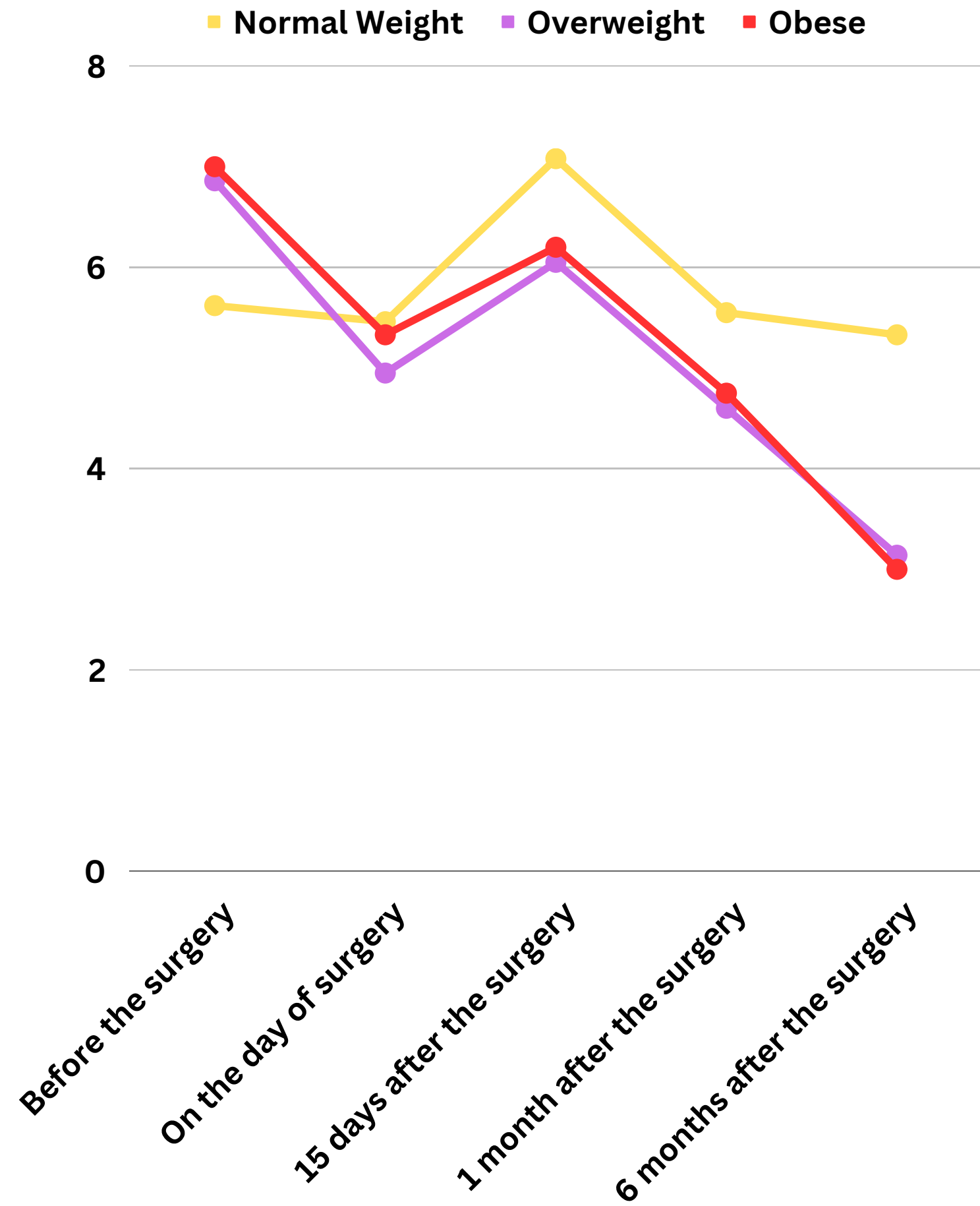
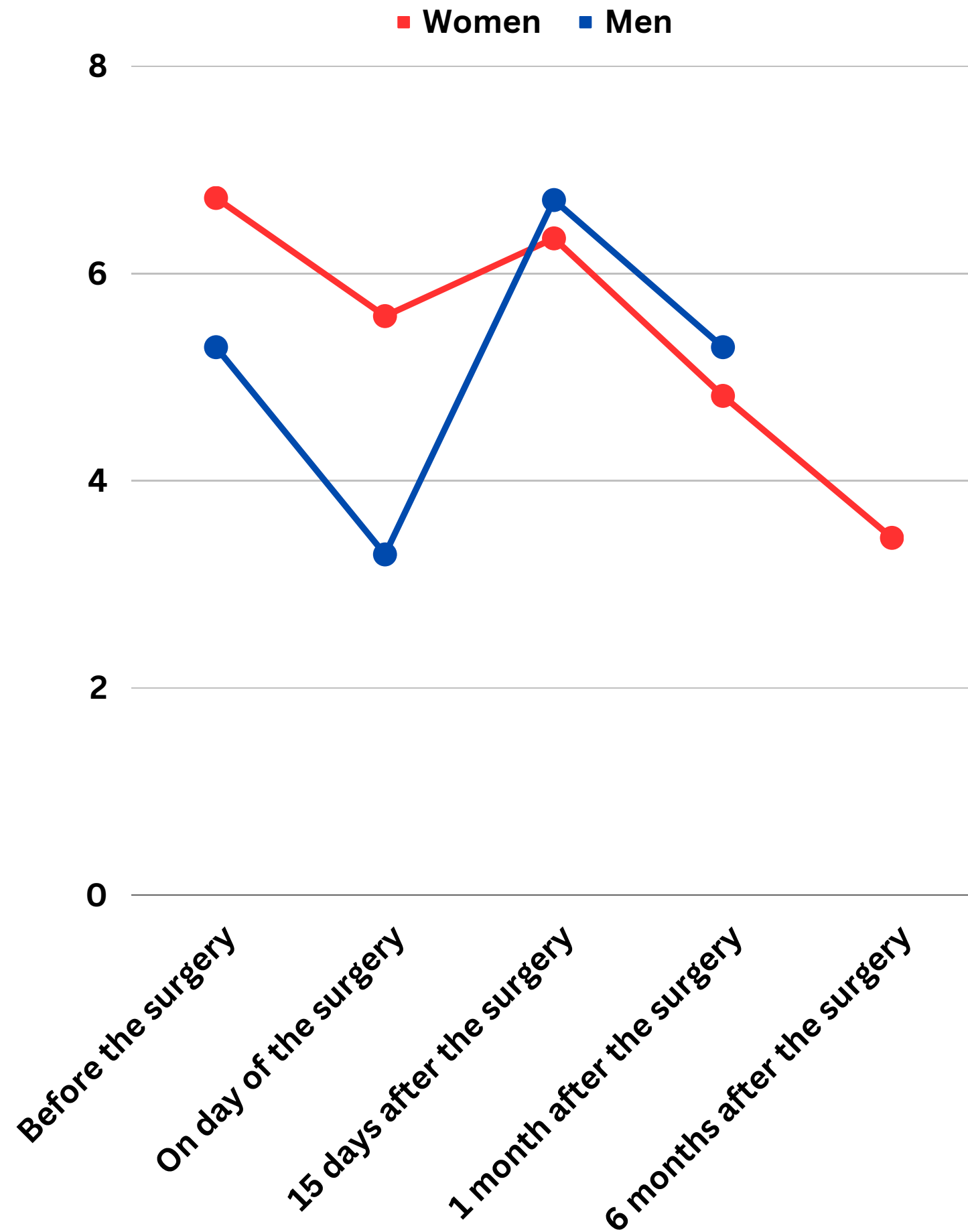




# PAIN LEVELS BEFORE AND AFTER THE TKA

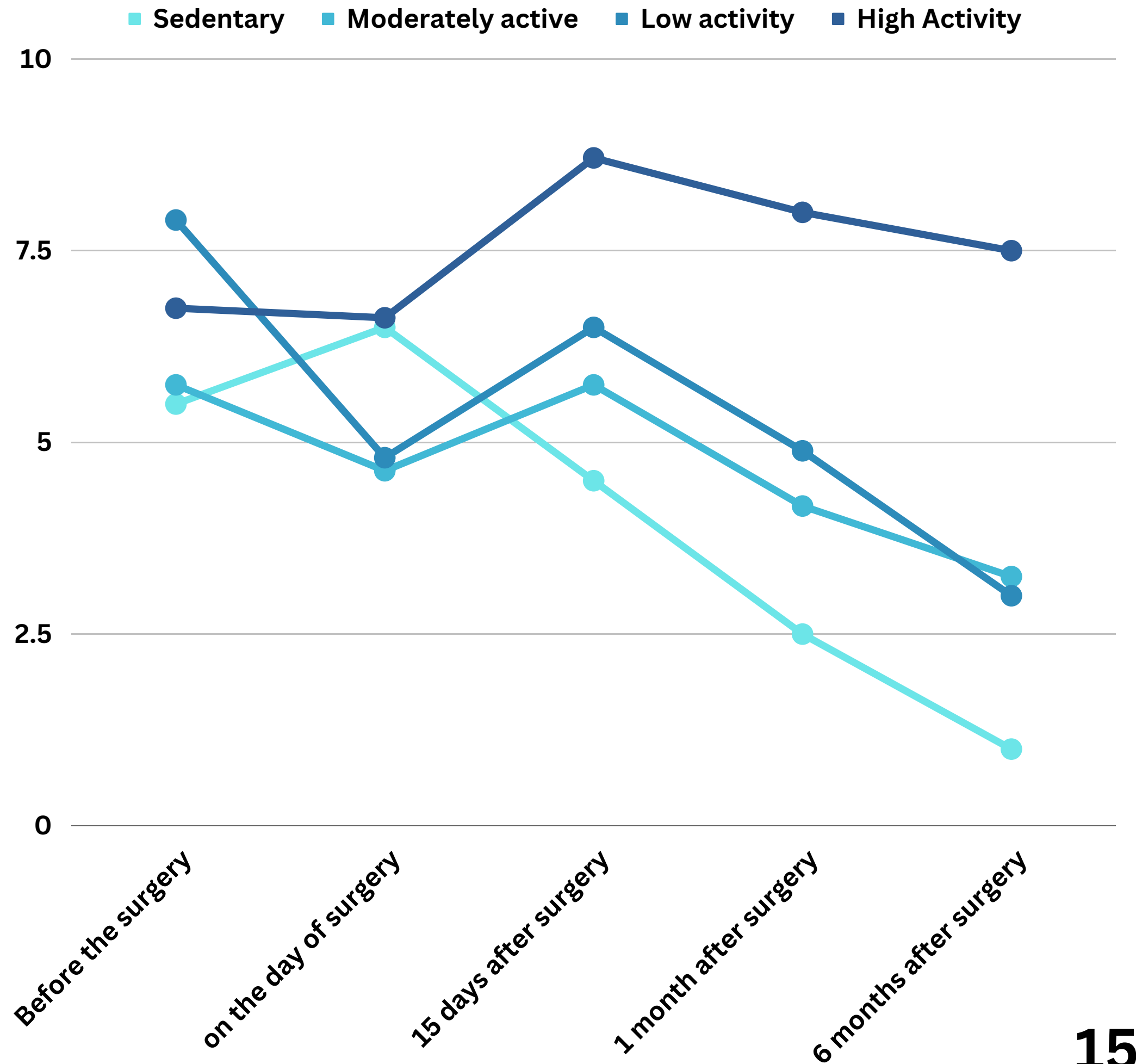


# PAIN TREND BY GENDER AND WEIGHT



# PAIN TREND BY ACTIVITY LEVEL

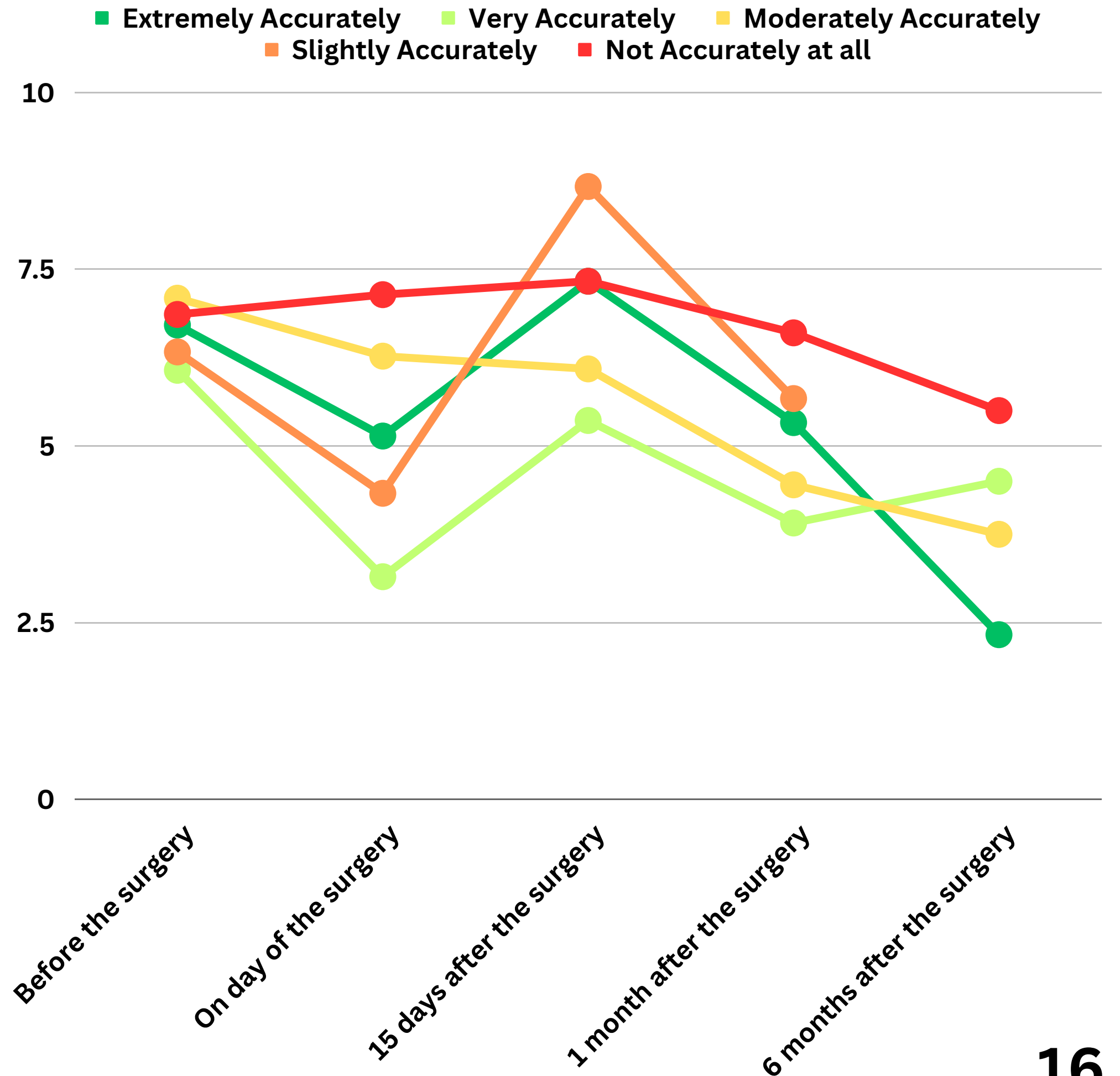
Patients with more active lifestyles tend to experience more pain.





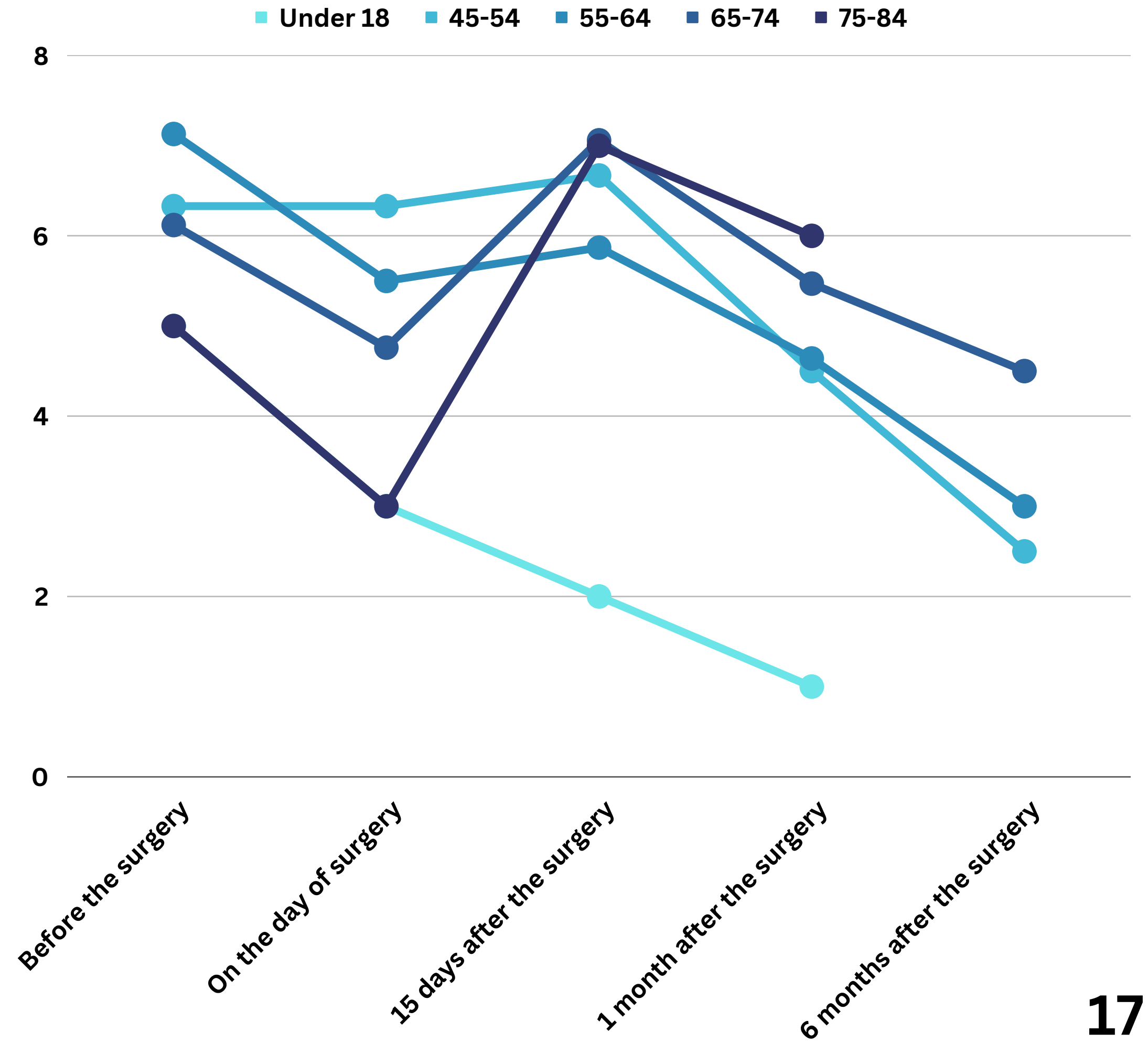
# PAIN TREND BY HOW INFORMED THE PATIENT FELT BEFORE THE SURGERY

Patients who believed they were not well informed about the post-surgery pain tend to experience more pain during and after TKA.



# PAIN TREND BY PATIENT AGE

The 40-70 age group predominantly undergo TKA





# INTERVIEW INSIGHTS

**7 Women**

## Age

**55-64: 4**

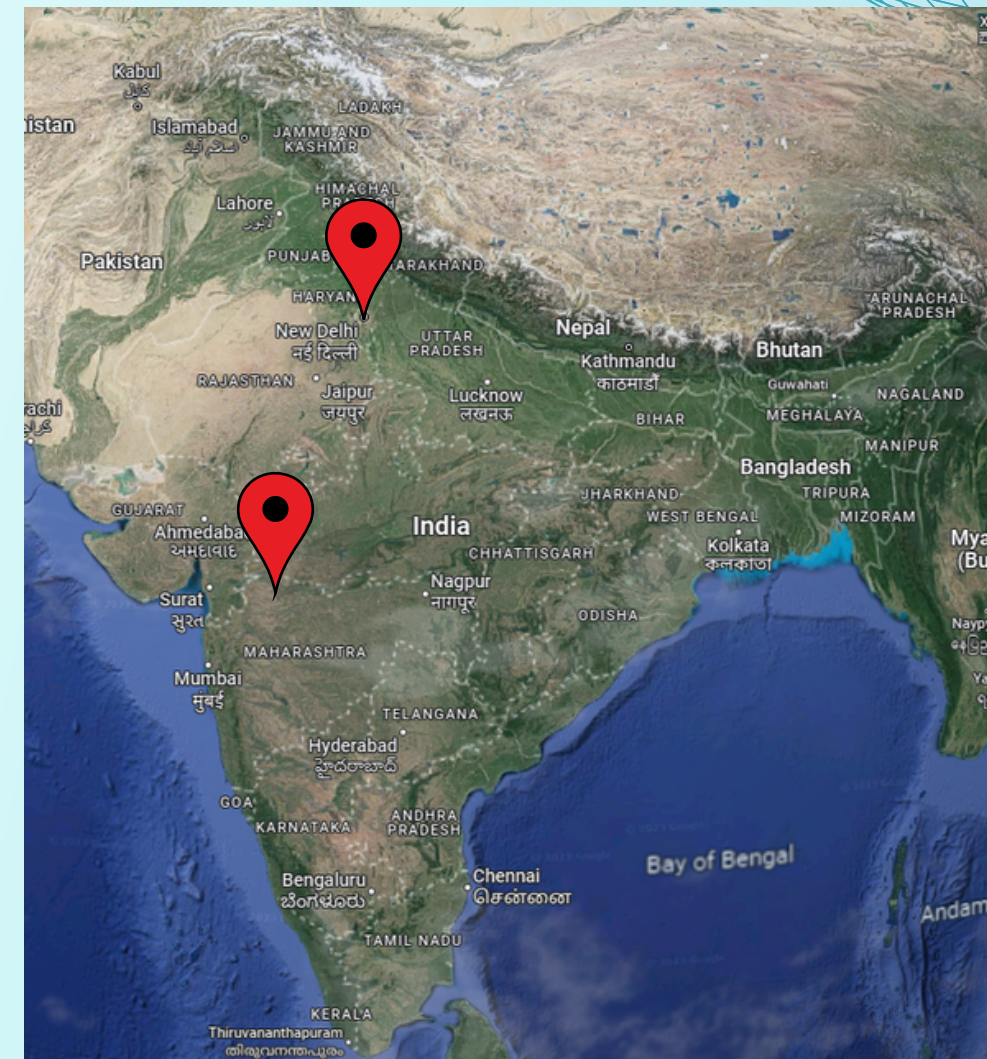
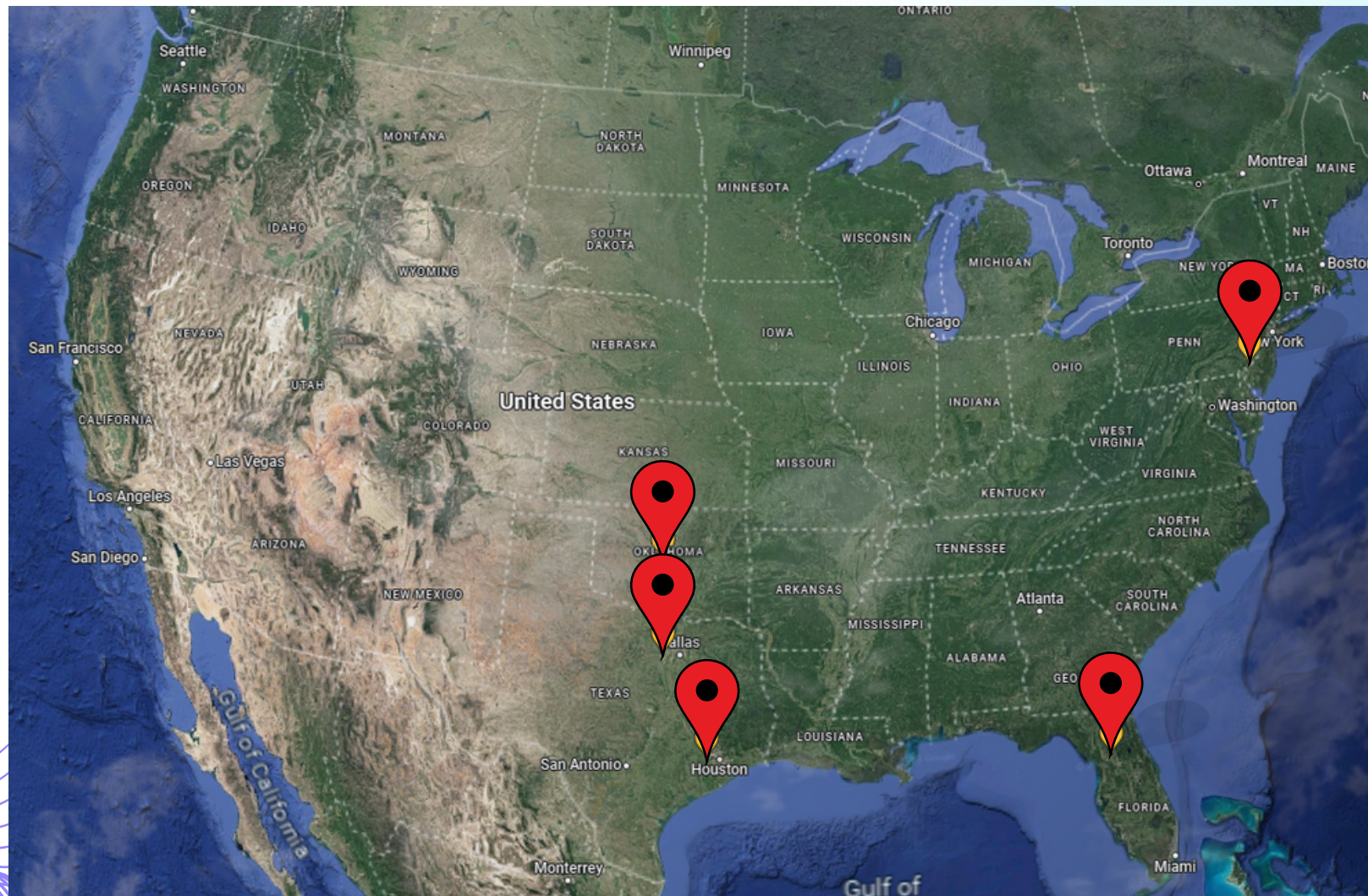
**65-74: 3**

## Ethnicity

**White: 4**

**Asian: 2**

**Hispanic / Latino / Spanish Origin: 1**







# CUSTOMER INTERVIEWS: OPINION BEFORE TKA

Time after first developing knee issues that surgery is considered

**8-10 Years**



Common side effects:



One woman informed that her doctor suggested an allergy test

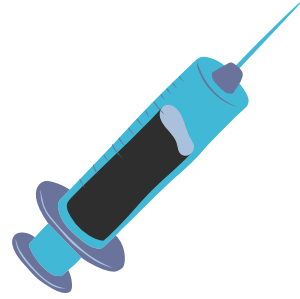
Found out she was allergic to Nickel

Wait Time before going for 2nd knee surgery

**6-12 months**



# PAIN MANAGEMENT TECHNIQUES AFTER TKA



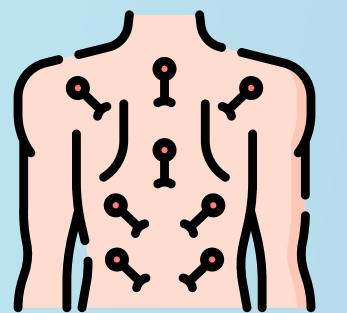
**5 out of the 7 women used opioids.  
Other two did not react well to medication.**



**None of the women interviewed were worried about addiction to opioids.**



**Acupuncture, heat therapy and massage helped the patients for pain management**



**3 out of 7 women were open to trying the sustained release anaesthetic.**



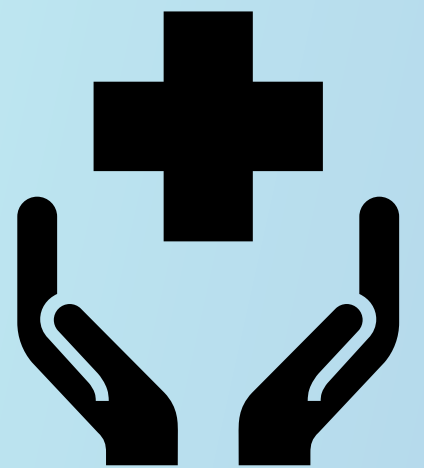
# Customer Interviews: Side Effects

## Common side effects:

- Drowsiness
- Drop in Blood Pressure
- Nausea
- Constipation
- Psychological illness
- Insomnia

## Uncommon side effects :

- Urine Infection
- Addiction to opioids





# INTERESTING FINDINGS FROM OUR RESEARCH

- There is a pressing need for pain management alternatives-the pain might last beyond first few days of surgery.
- 50% patients feel they could have been better informed about the pain journey.
- Post-op pain goes up as the patients' ages increase.
- Patients feeling ill-informed about the pain - issue across health facilities
- Post-op pain goes up as the patients' activity levels go up.
- Highly Active Adults tend to experience much higher pain levels.
- Well informed patients tend to experience lower pain levels.



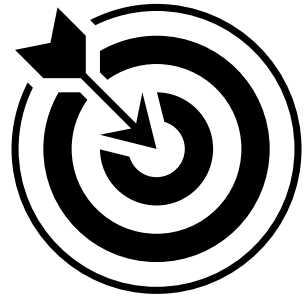


# WE RECOMMEND ALLAY TO DEVELOP ATX-101

- Will eliminate the patient need for systematic opioids and it's many side effects
- First movers competitive advantage 
- Shorter pain period, better pain management 
- Alternative applications of ATX-101



# GO-TO-MARKET STRATEGY FOR ALLAY BASED ON SURVEY AND INTERVIEW DATA



## Target highly active people

They need sustained pain relief the most

**Create informative videos about the product to better inform patients about the pain relief mechanisms**

Well informed patients tend to experience lower pain



## Push strategy for doctors

Doctors can recommend this method of pain relief to patients



## Pull strategy for prospective patients

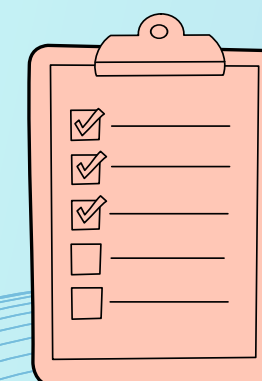
Advertising the product to the right segment well will create a demand from patients to try this method of pain relief



# POSSIBLE ACTION PLAN FOR ALLAY



- Perform a more widespread market research based on our survey design and implementing our key learnings.
- Tap deeper into demographic data and the trends that emerge.
- Use these survey data as a preliminary data set for further research.
- Identify more ATX-101 focused questions for the user interviews.





# THANK YOU!

