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## Understanding the Factors that Influence Woman's Decision-Making regarding Breast Augmentation Surgery



**Abstract: - Background:** Cultural perspectives on physical attractiveness and aging vary worldwide, but there is a global demand for cosmetic procedures. Physical attractiveness is associated with increased self-confidence and perceived advancements in various areas, although the direct impact is not always clear. Dissatisfaction with breast shape can negatively impact self-esteem and marital relationships, even leading to divorce in some cases. Further research is needed to identify factors influencing women's decision-making, sociocultural influences on breast aesthetics perception, and financial considerations regarding breast augmentation surgery. Our study aims to identify the level of awareness about the risks and understanding the factors that influence woman's decision-making regarding breast augmentation surgery.

**Methodology:** This a cross-sectional study was designed to understand the factors that influence women's decision-making regarding breast augmentation surgery. Data was collected using a structured questionnaire administered via online surveys and analyzed using quantitative methods.

**Results:** The study included 891 participants, the majority of respondents fall within the 21-30 age range, accounting for 53.8% of the total. 6.5% of the respondents have considered undergoing breast augmentation surgery. Over a third of the respondents (34.1%) have had surgery previously. 44.7% of participants had good knowledge score while 55.3% had poor knowledge score. 23.9% had high perception, 57.1% had moderate perception, and 19% had low perception. 34.3% of participants had high perception of benefits, 56% had moderate perception, and 9.7% had low perception.

**Conclusion:** In conclusion, the decision to undergo breast augmentation surgery is influenced by a variety of factors. Societal pressure, media influence, personal body image and self-esteem, psychological factors, support from loved ones, financial considerations, and the expertise of the surgeon and surgical facility all play a role in a woman's decision-making process. Knowledge of breast augmentation surgery was significantly associated with age and annual income, while perception about the surgery was significant with age and nationality.

**Keywords:** factors, influence, woman's decision-making, breast augmentation surgery

### 1. Introduction:

Cultural perspectives on physical attractiveness, personal well-being, and aging vary significantly worldwide. However, despite these differences, a growing global demand for cosmetic procedures exists. As a psychosocial factor, physical attractiveness has been associated with increased self-confidence, self-esteem, and perceived advancements in various areas such as career success, earnings, social status, academic performance, and even sporting performance. However, the direct impact on these areas is not always clear [1].

Breast dissatisfaction can negatively impact women's self-esteem and marriages, and is a leading cause of divorce in Iran. Breast augmentation surgeries have increased by 300% over the past decade in the United States

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and can significantly improve quality of life for women. Studies show increases ranging from 80% to 95% in marital satisfaction after breast augmentation surgery, and plastic surgery research is now focusing on the impact of surgery on overall quality of life [2]. Fat grafting is highly used as the sole treatment model for cosmetic breast augmentation. It was reported that the complication rates after breast augmentation with fat grafting are limited, and it is better than breast augmentation with implants [3].

Several factors, including social media, can impact women's decision to undergo breast augmentation surgery. Social media, particularly Instagram, affect patients' education and decision-making processes regarding breast augmentation. It was revealed that most of the population uses social media as their primary source of information regarding breast augmentation [4].

Breast augmentation is a highly popular cosmetic surgery, commonly performed by plastic surgeons around the world [5]. In Brazil and globally, breast augmentation with implants remains the most sought-after cosmetic procedure [6]. In 2018 alone, there were 1,862,506 breast augmentation surgeries worldwide, with a notable increase of 6.1% from the previous year [7]. This trend extends to Australia where over 20,000 breast augmentations were performed [7]. According to the International Society of Aesthetic Plastic Surgery, breast augmentation is not only the most popular plastic surgery procedure worldwide but also the leading surgical aesthetic procedure in the United States [8]. Additionally, autologous fat grafting (AFG), a technique using a patient's own fat as an alternative to implants, has been gaining popularity since its invention in 1895 [9]. The number of breast implant surgeries has significantly increased in recent years, with over 10 million women having undergone these procedures. Approximately 75% of these surgeries are for aesthetic purposes, while 25% are reconstructive procedures following mastectomy [10].

A Saudi Arabian study found that only 21.7% of women seeking breast implants were aware of the risk of anaplastic large cell lymphoma. After learning about the risk, 42.5% decided against implants, 41.7% were uncertain, and 15.7% still wanted them [11]. Furthermore, a study revealed that providing additional risk information about the long-term effects of breast augmentation significantly reduced women's willingness to recommend it. Moreover, even with additional risk information, women's comprehension of the potential for future revision surgery following breast augmentation doesn't seem to improve, indicating a persistent lack of awareness concerning associated risks [12]. In a more recent study, only 14% of the participants had heard about BII, and only 8% had heard about BIA-ALCL [13]. Viewing images of women with cosmetic enhancements on social media has been demonstrated to influence the desire for cosmetic surgery among young women [14]. And that social media, especially Instagram, plays a crucial role in shaping patients' decisions to undergo breast augmentation [15].

Due to insignificant number related to our topic in Saudi Arabia. There's a few numbers of sample size and a variation in results in Previous researches [16]. Recent research in Saudi Arabia suggested that Nearly half of Saudi women have not heard of BIA-ALCL [17]. It may be due to the potential issues whether patients are being fully informed about all possible risks and related financial implications[18]. It is important for plastic surgeons to discuss unusual complications related to breast implants with patients on a regular basis [19]. Our study aims to identify the level of awareness about the risks and understanding the factors that influence woman's decision-making regarding breast augmentation surgery.

## 2. Objectives:

1. To identify level of awareness about the risks of breast augmentation surgery among women.
3. To determine how age, education level, and income level affect women's knowledge and perception of breast augmentation surgery.
4. To establish where women look for information about breast augmentation surgery.

## Materials and Methods:

### Study design:

This study was a cross-sectional design that identify factors that influence women's decision-making process when considering breast augmentation surgery. The study was using a structured questionnaire to collect data from a representative sample of women who have undergone breast augmentation surgery.

### Study setting: Participants, recruitment, and sampling procedure:

The study setting for this research wasspan across multiple cities in Saudi Arabia, including Riyadh, Jeddah, Mecca, Medina, Dammam, and others. These cities represent the cultural and religious diversity of the country, providing a wider scope for the research to explore the factors that influence women's decision-making process regarding breast augmentation surgery. Furthermore, these cities also have varying levels of economic

development and healthcare facilities, which could potentially impact women's access to and perceptions of the procedure. Overall, the choice of these cities was allowed for a comprehensive understanding of the factors that affect women's decision-making, as well as the unique cultural and societal factors within each city.

**Participants:** The participants in this study were women who have considered or undergone breast augmentation. Participants were recruited through social media platforms, such as Facebook and Twitter, as well as through flyers posted in community centers and clinics. Women who are interested in participating were directed to a website where they were to complete an online screening questionnaire to determine their eligibility.

The sampling procedure for this study was purposive sampling. Purposive sampling is a non-random sampling technique used to select individuals who meet certain predetermined criteria. In this study, women who have considered or undergone breast augmentation surgery were the target population. Specifically, the sample was including women who have undergone breast augmentation surgery within the past 5 years and women who have considered but ultimately decided against breast augmentation surgery within the past 5 years. This sampling technique was allowed for a more focused and targeted sample, as opposed to a random sample that may not include participants who have the relevant experiences.

### **Inclusion and Exclusion criteria:**

The inclusion criteria for our study on breast augmentation surgery were clear and specific. We aimed to recruit women who were 18 years or older and were either contemplating or had already undergone breast augmentation surgery. It was also necessary that these women could comprehend and complete the study questionnaire and provide informed consent for their participation.

While the inclusion criteria were clear, we also had some strict exclusion criteria. Our study couldn't include men, women with a previous breast cancer diagnosis, those who had previously undergone breast reconstruction surgery, and women who were pregnant or breastfeeding. In addition, women with a known history of psychiatric disorders that could impact their decision-making related to breast augmentation surgery were also excluded from the study. By being mindful of these criteria, we ensured the safety and accuracy of our study.

### **Sample size:**

by using the Qualtrics calculator and a 95% degree of confidence, the size of the sample was estimated, So the minimum sample size was 384.

The Sample size was estimated by using this formula:

$n = P(1-P) * Z^2 / d^2$  with a confidence level of 95%.

n: Calculated sample size

Z: The z-value for the selected level of confidence  $(1 - \alpha) = 1.96$ .

P: An estimated knowledge

Q:  $(1 - 0.50) = 50\%$ , i.e., 0.50

D: The maximum acceptable error = 0.05.

So, the calculated minimum sample size was:

$n = (1.96)^2 * 0.50 * 0.50 / (0.05)^2 = 384$ .

### **Method for data collection and instrument (*Data collection Technique and tools*):**

Our research methodology is rooted in the insights of Didie and Sarwer's study [20], which provided the inspiration for the development of our research instruments. To comprehensively explore women's perspectives on breast augmentation surgery, we designed our methodology to investigate key dimensions: knowledge, risk and benefit perceptions, knowledge sources, and overall attitudes.

The foundation of our data collection process lies in a crafted online survey, offered in both Arabic and English languages, and disseminated across diverse platforms to ensure participation across various demographic groups.

Our research instruments comprise a suite of specialized questionnaires, carefully tailored to capture distinct aspects of participants' viewpoints. The Demography Questionnaire serves as the initial point of data collection, capturing essential demographic information such as age, education, marital status, occupation, and geographic location. The Risk Knowledge Questionnaire (RKQ) assesses participants' awareness of potential surgical risks, while the Risk Perception Questionnaire (RPQ) gauges perceptions of the likelihood of these risks. The Perception of Benefits Questionnaire (PBQ) evaluates participants' perceptions of potential surgical benefits using a five-point scale. The Source of Knowledge Questionnaire (SKQ) investigates primary information sources, and the Women's Perception of Breast Augmentation (WPBA) Questionnaire explores broader attitudes.

**Scoring system:**

Scoring for the Risk Knowledge Questionnaire (RKQ): yes=1 and no=0, with a maximum of 5 points and a minimum of 0 points.

Scoring for the Risk Perception Questionnaire (RPQ): strongly agree =5, agree = 4, neutral = 3, disagree = 2, strongly disagree =1. Maximum of 5 points and minimum of 1 point

Scoring for the Perception of Benefits Questionnaire (PBQ): strongly agree =5, agree = 4, neutral = 3, disagree = 2, strongly disagree =1. Maximum of 5 points and minimum of 1 point

Women's Perception of Breast Augmentation (WPBA) Questionnaire no scoring system

**Analyzes and entry method:**

Using the 2016 Windows version of the "Microsoft Office Excel Software" program, data was entered on the computer. Then, the data was transmitted to the SPSS application, version 20 (IBM SPSS Statistics for Windows, Version 20.0; Armonk, NY: IBM Corp.), where it was statistically examined.

**3. Results:**

The study included 891 participants, the majority of respondents fall within the 21-30 age range, accounting for 53.8% of the total. The next largest age group is 18-20, making up 21% of the sample. The remaining age groups have smaller percentages, with 31-40 at 14.5%, 41-50 at 7.7%, and 51-60 at 3%. The majority of respondents are female, accounting for 97.3% of the total. Male respondents make up only 2.7%.

The majority of respondents are Saudi, accounting for 84% of the total. Non-Saudi respondents make up the remaining 16%. In terms of location, the largest group of respondents is from the West region, accounting for 30% of the total. The South region has the next largest representation at 22.2%, followed by the Middle region at 18.6%, the North region at 13.2%, and the East region at 15.9%. The majority of respondents have completed college or university, accounting for 75.4% of the total. High school level education is the next largest group at 15.7%, followed by postgraduate at 7.4%, intermediate educational level at 1%, and elementary school level at 0.4%.

In terms of occupation, the largest group of respondents are students, accounting for 49.4% of the total. Employed individuals make up 29.1%, homemakers make up 11.9%, unemployed individuals make up 8%, and retired individuals make up 1.7%. The majority of respondents have an income of less than 20,000 Saudi Riyals, accounting for 76% of the total. The next largest income group is 20,000 - 40,000 Saudi Riyals at 10.7%, followed by 40,000 - 60,000 Saudi Riyals at 3.6%, 60,000 - 80,000 Saudi Riyals at 3.1%, and over 80,000 Saudi Riyals at 6.6%.

Regarding marital status, the majority of respondents are single, accounting for 64% of the total. Married individuals make up 32.2%, divorced individuals make up 3.1%, and widowed individuals make up 0.7%. 30.4% of respondents have children, while 69.6% do not have any children. Among those with children, the majority have one child, accounting for 5.7% of the total. The number of children decreases as the number of children increases, with the smallest group having 14 children at 0.1% of the total.

Table (1): Sociodemographic characteristics of participants (n=891)

Parameter		No.	Percent
<b>Age</b>	18 - 20	187	21.0
	21- 30	479	53.8
	31- 40	129	14.5
	41- 50	69	7.7
	51 -- 60	27	3.0
<b>Gender</b>	Male	24	2.7
	Female	867	97.3
<b>Nationality</b>	Saudi	748	84.0
	Non-Saudi	143	16.0
<b>Location</b>	East	142	15.9
	Middle	166	18.6
	North	118	13.2

	South	198	22.2
	West	267	30.0
<b>Education Level</b>	Elementary school level	4	.4
	Intermediate educational level	9	1.0
	High school level	140	15.7
	College / University	672	75.4
	Postgraduate	66	7.4
	<b>Occupation</b>	Employed	259
Homemaker		106	11.9
Retired		15	1.7
Student		440	49.4
Unemployed		71	8.0
<b>Annual Income (in Saudi Riyals)</b>	Less than 20,000	677	76.0
	20,000 - 40,000	95	10.7
	40,000 - 60,000	32	3.6
	60,000 - 80,000	28	3.1
	Over 80,000	59	6.6
<b>Marital Status</b>	Married	287	32.2
	Single	570	64.0
	Divorced	28	3.1
	Widowed	6	.7
<b>Have any children</b>	Yes	271	30.4
	No	620	69.6
<b>Number of Children</b>	1	51	5.7
	2	63	7.1
	3	48	5.4
	4	51	5.7
	5	31	3.5
	6	18	2.0
	7	9	1.0
	8	3	.3
	9	1	.1
	14	1	.1
	None	615	69.0

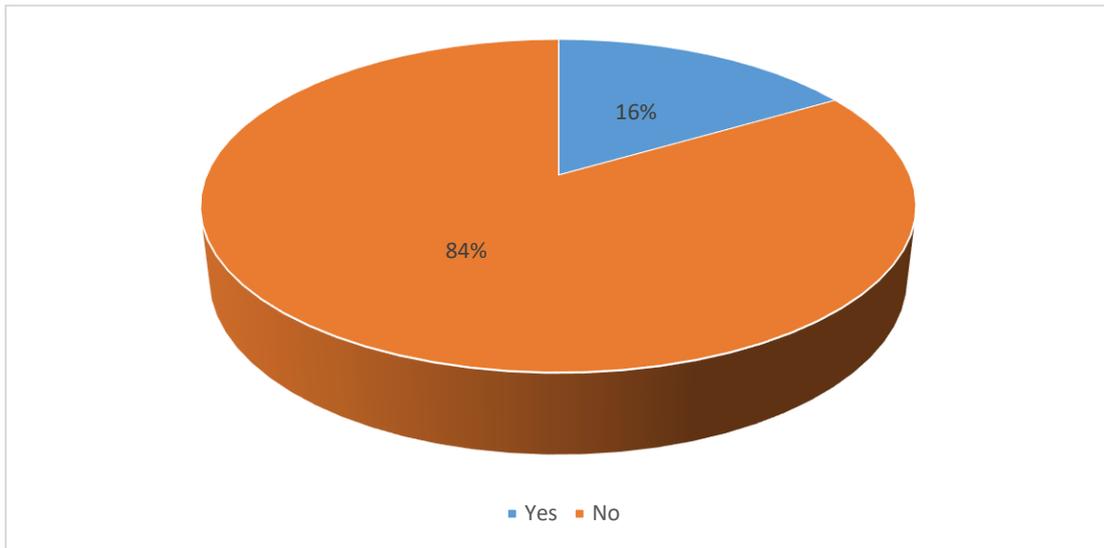


Figure 1. Participants considered undergoing breast augmentation surgery.

16% of the respondents have considered undergoing breast augmentation surgery. Over a third of the respondents (84%) answer no.

As illustrated in table (2), the majority of participants (52.3%) are aware of infection as a complication, while a smaller percentage (16.6%) indicated they do not know about it. It is important to continue educating individuals about the potential risks and preventive measures related to infections after surgery. Similarly, the results show that more than half of the participants (54.7%) are aware of implant rupture or leakage, while a significant number (27.9%) are unsure about this complication. It is crucial to emphasize the importance of regular check-ups and proper care to minimize the risk of implant-related issues.

Table (2): Knowledge of participants of Complications of Breast Augmentation Surgery (n=891).

	Yes	No	Don't know
<b>Infection</b>	466 52.3%	148 16.6%	277 31.1%
<b>Implant rupture or leakage</b>	487 54.7%	155 17.4%	249 27.9%
<b>Capsular contracture</b>	469 52.6%	127 14.3%	295 33.1%
<b>Changes in breast sensation</b>	595 66.8%	122 13.7%	174 19.5%
<b>Changes in breast appearance over time</b>	527 59.1%	137 15.4%	227 25.5%

A significant portion of respondents strongly agreed or agreed that breast augmentation surgery can enhance one's self-esteem and body image. Approximately 65.1% of participants fell into this category, indicating a prevailing belief that this procedure has a positive impact on an individual's self-perception. Nearly 66.2% of participants agreed or strongly agreed with this statement, emphasizing the role of this procedure in allowing individuals to attain their aesthetic goals. Approximately 49.8% of participants agreed or strongly agreed that this procedure can positively impact an individual's confidence in their choice of attire. While 41.5% of respondents agreed or strongly agreed that breast augmentation surgery can have a positive impact on social interactions, a significant proportion (28.4%) remained neutral on this matter.

Approximately 63.4% of participants either agreed or strongly agreed that breast implant surgery carries a risk of infection. Nearly 68.1% of participants agreed or strongly agreed that they were concerned about this possibility. Approximately 63.3% of respondents agreed or strongly agreed that this was a concern. 68.2% of participants agreed or strongly agreed that this was a potential risk. 60.4% of participants agreed or strongly agreed with this statement. This finding emphasizes the importance of realistic expectations and understanding that breast appearance may change over time due to factors such as aging, weight fluctuations, and pregnancy.

Table (3): Perceived benefits and potential risks associated with breast augmentation surgery among study participants (n=891).

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Believe that breast augmentation surgery can enhance one's self-esteem and body image	230 25.8%	350 39.3%	209 23.5%	57 6.4%	45 5.1%
Think that breast augmentation surgery provides an opportunity for women to achieve their desired breast size	191 21.4%	399 44.8%	211 23.7%	58 6.5%	32 3.6%
Agree that improved confidence in clothing and swimwear is a benefit of breast augmentation surgery	158 17.7%	286 32.1%	234 26.3%	123 13.8%	90 10.1%
Believe that breast augmentation surgery can have a positive impact on social interactions	108 12.1%	262 29.4%	273 30.6%	164 18.4%	84 9.4%
Think that breast augmentation surgery can potentially impact self-esteem and self-confidence	194 21.8%	370 41.5%	200 22.4%	74 8.3%	53 5.9%
Think breast implant surgery carries a risk of infection	267 30.0%	298 33.4%	219 24.6%	89 10.0%	18 2.0%
Concerned about the potential risk of implant rupture or leakage after breast augmentation surgery	256 28.7%	351 39.4%	190 21.3%	66 7.4%	28 3.1%
Think that capsular contracture is a significant risk associated with breast augmentation surgery .	238 26.7%	326 36.6%	255 28.6%	45 5.1%	27 3.0%
Worried about changes in breast sensation as a potential risk of breast augmentation surgery.	272 30.5%	336 37.7%	208 23.3%	51 5.7%	24 2.7%
Aware that changes in breast appearance over time can be a risk following breast augmentation surgery	230 25.8%	308 34.6%	260 29.2%	69 7.7%	24 2.7%

Table (4) shows that most respondents reported obtaining information about the procedure from internet search engines (27.8%), followed by healthcare professionals (19.0%), medical websites or forums (18.5%), and social media platforms (18.2%). Among the social media platforms, Instagram was the most commonly used (21.5%), followed by YouTube (15.7%), Twitter (12.7%), TikTok (10.0%), and Facebook (1.2%). When it comes to the frequency of using social media as a source of information, a significant portion of respondents (46.2%) reported never using social media for this purpose. Among those who did, the majority used it less than once a month (15.3%), followed by 1-2 times a month (6.4%) and daily (3.7%). Family and friends were reported as a source of information about breast augmentation surgery by 4.9% of respondents. The frequency of using family and friends as a source of information varied, with the most common response being daily (15.5%), followed by 3-6 times a month (8.9%) and less than once a month (7.3%).

The degree of trust in information from family and friends varied, with 30.0% reporting little trust, 24.8% being neutral, and 24.7% having no trust at all. Similarly, the general perception of breast augmentation surgery was mostly neutral (49.7%), followed by positive (19.0%) and negative (15.6%). In terms of social acceptability, breast augmentation surgery was perceived as slightly acceptable by the majority (40.3%), while 24.7% remained neutral and 12.7% found it not at all acceptable. Respondents' beliefs about the alignment of breast augmentation surgery with cultural and societal norms were evenly distributed across the categories, with 31.5% being neutral.

A significant portion of respondents believed that breast augmentation surgery can have a positive impact on a woman's self-esteem and body image, with 37.3% agreeing and 15.8% strongly agreeing. On the other hand,

9.2% disagreed and 6.8% strongly disagreed. When it comes to the general public's knowledge about the potential risks and complications of breast augmentation surgery, the majority (37.0%) considered themselves somewhat knowledgeable, while 27.7% remained neutral and 20.7% claimed not to be knowledgeable at all. Lastly, respondents' perception of society's acceptance towards women who have undergone breast augmentation surgery was evenly distributed across the categories, with 32.7% finding it somewhat accepting and 29.7% being neutral.

Table (4): Sources of information and perceptions surrounding breast augmentation surgery among participants (n=891).

Parameter	No.	Percent
Source of information about breast augmentation surgery	Friends or family members	44 4.9
	Healthcare professionals	169 19.0
	Internet search engines	248 27.8
	Medical websites or forums	165 18.5
	Social media platforms	162 18.2
Social media platforms used to gather information about breast augmentation surgery	Facebook	11 1.2
	Instagram	192 21.5
	TikTok	89 10.0
	Twitter	113 12.7
	YouTube	140 15.7
	other	346 38.8
Frequency of using social media as sources of information about breast augmentation surgery	Never	412 46.2
	1-2 times a week	11 1.2
	3-4 times a week	15 1.7
	5-6 times a week	19 2.1
	Less than once a month	136 15.3
	1-2 times a month	57 6.4
	3-6 times a month	25 2.8
	1-2 times a year	81 9.1
	3-4 times a year	13 1.5
	5-6 times a year	3 .3
	7-11 times a year	4 .4
	12 or more times a year	23 2.6
	Daily	33 3.7
	Other	48 5.4
	Other, please specify	11 1.2
	Never	416 46.7

Frequency of using family and friends as sources of information about breast augmentation surgery	1-2 times a week	20	2.2
	3-4 times a week	14	1.6
	5-6 times a week	14	1.6
	Less than once a month	65	7.3
	1-2 times a month	28	3.1
	3-6 times a month	79	8.9
	1-2 times a year	14	1.6
	3-4 times a year	6	.7
	5-6 times a year	6	.7
	7-11 times a year	19	2.1
	12 or more times a year	16	1.8
	Daily	138	15.5
	Other	45	5.1
	Other, please specify	11	1.2
Degree of trust in information about breast augmentation surgery from friends or family members	Complete trust	24	2.7
	Some trust	159	17.8
	Little trust	267	30.0
	Neutral	221	24.8
	No trust at all	220	24.7
General perception of breast augmentation surgery	Very Positive	31	3.5
	Positive	169	19.0
	Neutral	443	49.7
	Negative	139	15.6
	Very Negative	109	12.2
Social acceptability of breast augmentation surgery	Highly acceptable	39	4.4
	Neutral	220	24.7
	Moderately acceptable	160	18.0
	Slightly acceptable	359	40.3
	Not at all acceptable	113	12.7
Think breast augmentation surgery aligns with cultural and societal norms	Highly aligned	37	4.2
	Moderately aligned	115	12.9
	Neutral	281	31.5
	Somewhat aligned	234	26.3
	Not at all aligned	224	25.1

Believe breast augmentation surgery can have a positive impact on a woman's self-esteem and body image	Strongly Agree	141	15.8
	Agree	332	37.3
	Neutral	275	30.9
	Disagree	82	9.2
	Strongly Disagree	61	6.8
Rate general public knowledge about the potential risks and complications of breast augmentation surgery	Very knowledgeable	33	3.7
	Moderately knowledgeable	97	10.9
	Neutral	247	27.7
	Somewhat knowledgeable	330	37.0
	Not knowledgeable at all	184	20.7
Believe society is towards women who have undergone breast augmentation surgery	Very accepting	54	6.1
	Moderately accepting	182	20.4
	Neutral	265	29.7
	Somewhat accepting	291	32.7
	Not accepting at all	99	11.1

As illustrated in figure (2), 44.7% of participants had good knowledge score while 55.3% had poor knowledge score.

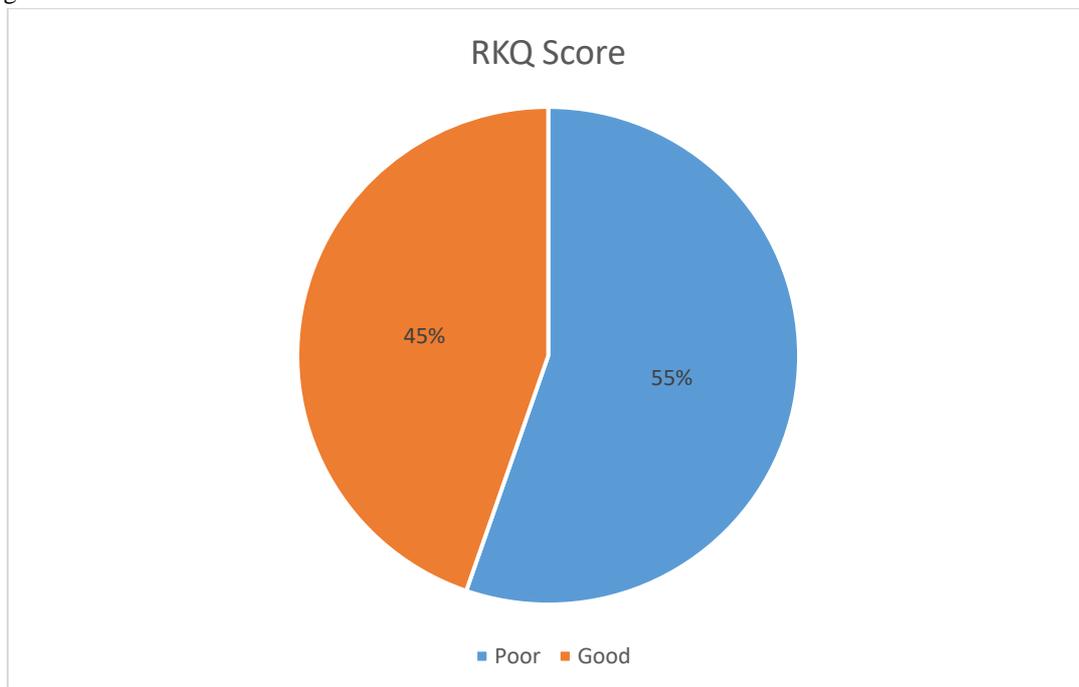


Figure (2): Risk Knowledge Questionnaire (RKQ)

As for RPQ score, figure 3 shows that 23.9% had high perception, 57.1% had moderate perception, and 19% had low perception.

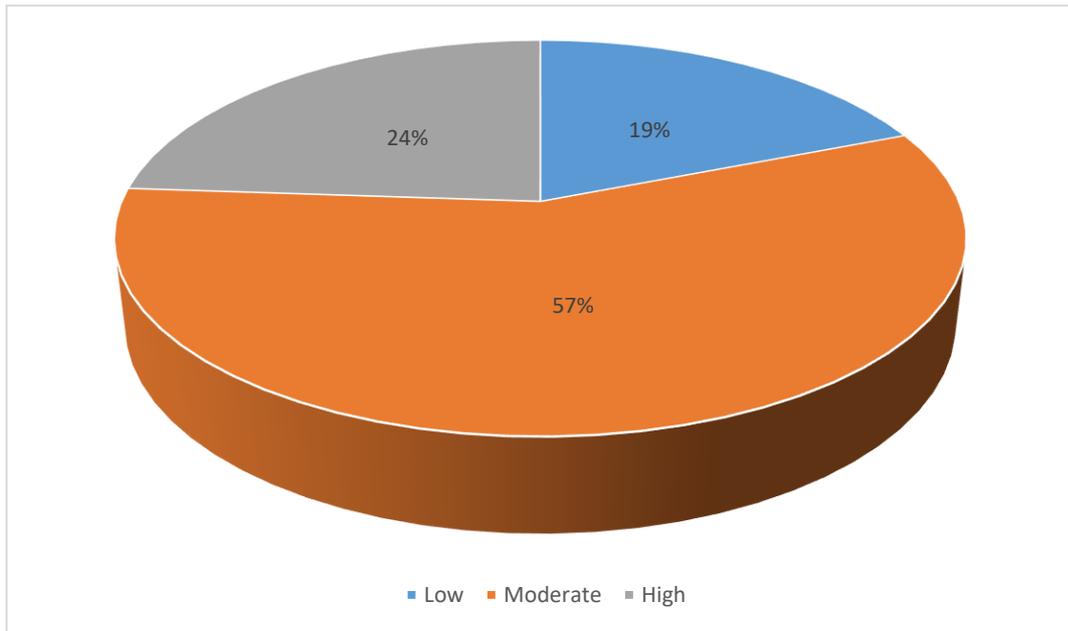


Figure (3): Risk Perception Questionnaire (RPQ)

Figure (4) shows that 34.3% of participants had high perception of benefits, 56% had moderate perception, and 9.7% had low perception.

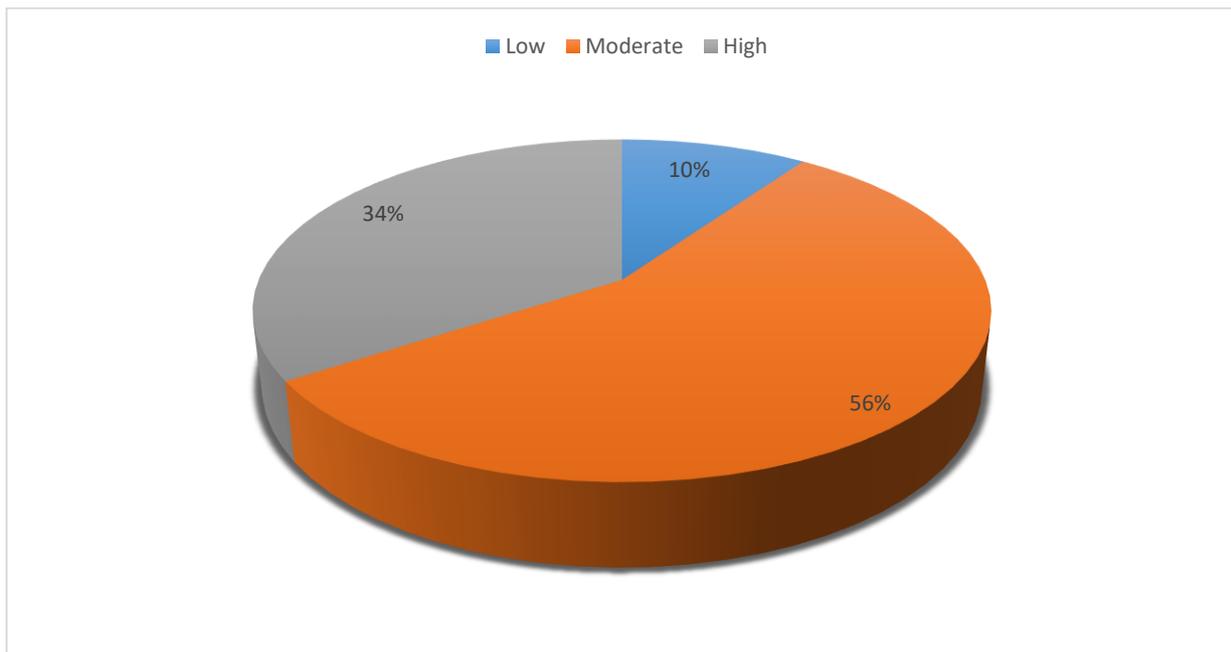


Figure (4): Perception of Benefits Questionnaire (PBQ)

The data presented in table (5) shows the distribution of knowledge scores among different demographic groups. The analysis reveals that there is a significant association between age and knowledge score ( $p=0.001$ ). Additionally, there is no significant difference in knowledge scores based on marital status ( $p=0.978$ ), gender ( $p=0.907$ ), nationality ( $p=0.191$ ), location ( $p=0.216$ ), occupation ( $p=0.420$ ), and previous surgery experience ( $p=0.590$ ). Furthermore, there is no significant difference in knowledge scores between individuals considering breast augmentation surgery and those who are not ( $p=0.763$ ). However, there is a significant association between knowledge scores and annual income ( $p=0.043$ ).

Table (5): Distribution of knowledge scores among different demographic groups (n=891).

		Knowledge score		Total (N=891)	P value
		Poor	good		
Age	18 -20	131	56	187	<b>0.001</b>
		14.70%	6.30%	21.00%	
	21 -30	234	245	479	
		26.30%	27.50%	53.80%	
	31 - 40	73	56	129	
		8.20%	6.30%	14.50%	
41- 50	43	26	69		
	4.80%	2.90%	7.70%		
51 -60	12	15	27		
	1.30%	1.70%	3.00%		
Marital status	Single	318	252	570	<b>0.978</b>
		35.70%	28.30%	64.00%	
	Married	157	130	287	
		17.60%	14.60%	32.20%	
	Divorced	15	13	28	
		1.70%	1.50%	3.10%	
widow	3	3	6		
	0.30%	0.30%	0.70%		
Gender	Male	13	11	24	0.907
		1.50%	1.20%	2.70%	
	Female	480	387	867	
		53.90%	43.40%	97.30%	
Nationality	Saudi	421	327	748	<b>0.191</b>
		47.30%	36.70%	84.00%	
	Non-Saudi	72	71	143	
		8.10%	8.00%	16.00%	
Location	East	71	71	142	<b>0.216</b>
		8.00%	8.00%	15.90%	
	Middle	87	79	166	
		9.80%	8.90%	18.60%	
	North	72	46	118	
		8.10%	5.20%	13.20%	
	South	119	79	198	
		13.40%	8.90%	22.20%	
West	144	123	267		
	16.20%	13.80%	30.00%		
Education Level	Elementary school level	1	3	4	<b>0.09</b>
		0.10%	0.30%	0.40%	
	Intermediate educational level	5	4	9	
		0.60%	0.40%	1.00%	

	High school level	86	54	140	
		9.70%	6.10%	15.70%	
	College / University	373	299	672	
		41.90%	33.60%	75.40%	
	Postgraduate	28	38	66	
		3.10%	4.30%	7.40%	
Occupation	Employed	140	119	259	<b>0.42</b>
		15.70%	13.40%	29.10%	
	Housewife	62	44	106	
		7.00%	4.90%	11.90%	
	Retired	7	8	15	
		0.80%	0.90%	1.70%	
	Student	238	202	440	
		26.70%	22.70%	49.40%	
	Unemployed	46	25	71	
		5.20%	2.80%	8.00%	
Annual Income (in Saudi Riyals)	Less than 20,000	386	291	677	<b>0.043</b>
		43.30%	32.70%	76.00%	
	20,000 - 40,000	43	52	95	
		4.80%	5.80%	10.70%	
	40,000 - 60,000	17	15	32	
		1.90%	1.70%	3.60%	
	60,000 - 80,000	20	8	28	
		2.20%	0.90%	3.10%	
	Over 80,000	27	32	59	
		3.00%	3.60%	6.60%	
Had surgery previously	yes	172	132	304	<b>0.59</b>
		19.30%	14.80%	34.10%	
	no	321	266	587	
		36.00%	29.90%	65.90%	
Considered undergoing breast augmentation surgery	yes	64	83	147	<b>0.763</b>
		7.20%	9.30%	16.50%	
	no	334	410	744	
		37.50%	46.00%	83.50%	

Table (6) shows that, participants aged 18-20 had the highest perception score at 21.0%, followed by those aged 21-30 at 53.8%. The differences in perception scores across age groups were statistically significant ( $p=0.024$ ). Marital status did not show a significant difference in perception scores ( $p=0.216$ ), with the highest score among married individuals at 32.2%. Gender also did not have a significant impact on perception scores ( $p=0.957$ ), with females having a higher score at 97.3%. Nationality did show a significant difference in perception scores ( $p=0.022$ ), with Saudi participants having a higher score at 84.0%. Education level did show a significant difference in perception scores ( $p=0.346$ ), with college/university graduates having the highest score at 75.4%. Occupation did not have a significant impact on perception scores ( $p=0.138$ ), with employed individuals having the highest score at 29.1%. Previous surgeries did not have a significant impact on perception scores ( $p=0.072$ ),

with those who had not undergone surgery having a higher score at 65.9%. Interest in breast augmentation surgery did show a significant difference in perception scores ( $p=0.001$ ), with those interested having a higher score at 83.5%. Overall, these findings provide insights into the relationship between various demographic factors and perception scores, highlighting the importance of considering these factors when analyzing perception data.

Table (6): perception scores based on sociodemographic characters.

		Perception score			Total (N=891)	P value
		Low	moderate	high		
Age	18 -20	50	106	31	187	0.024
		5.6%	11.9%	3.5%	21.0%	
	21 -30	73	283	123	479	
		8.2%	31.8%	13.8%	53.8%	
	31 - 40	27	68	34	129	
		3.0%	7.6%	3.8%	14.5%	
41- 50	12	37	20	69		
	1.3%	4.2%	2.2%	7.7%		
51 -60	7	15	5	27		
	0.8%	1.7%	0.6%	3.0%		
marital status	Single	107	336	127	570	0.216
		12.0%	37.7%	14.3%	64.0%	
	Married	52	157	78	287	
		5.8%	17.6%	8.8%	32.2%	
	Divorced	7	15	6	28	
		0.8%	1.7%	0.7%	3.1%	
widow	3	1	2	6		
	0.3%	0.1%	0.2%	0.7%		
Gender	Male	4	14	6	24	0.957
		0.4%	1.6%	0.7%	2.7%	
	Female	165	495	207	867	
		18.5%	55.6%	23.2%	97.3%	
Nationality	Saudi	131	430	187	748	0.022
		14.7%	48.3%	21.0%	84.0%	
	Non-Saudi	38	79	26	143	
		4.3%	8.9%	2.9%	16.0%	
Location	East	25	82	35	142	0.464
		2.8%	9.2%	3.9%	15.9%	
	Middle	37	97	32	166	
		4.2%	10.9%	3.6%	18.6%	
	North	25	63	30	118	
		2.8%	7.1%	3.4%	13.2%	
	South	39	118	41	198	
		4.4%	13.2%	4.6%	22.2%	
West	43	149	75	267		
	4.8%	16.7%	8.4%	30.0%		

Education Level	Elementary school level	2	1	1	4	0.346
		0.2%	0.1%	0.1%	0.4%	
	Intermediate educational level	2	5	2	9	
		0.2%	0.6%	0.2%	1.0%	
	High school level	28	81	31	140	
		3.1%	9.1%	3.5%	15.7%	
College / University	132	380	160	672		
	14.8%	42.6%	18.0%	75.4%		
Postgraduate	5	42	19	66		
	0.6%	4.7%	2.1%	7.4%		
Occupation	Employed	34	159	66	259	0.138
		3.8%	17.8%	7.4%	29.1%	
	Homemaker	27	54	25	106	
		3.0%	6.1%	2.8%	11.9%	
	Retired	2	10	3	15	
		0.2%	1.1%	0.3%	1.7%	
Student	93	249	98	440		
	10.4%	27.9%	11.0%	49.4%		
Unemployed	13	37	21	71		
	1.5%	4.2%	2.4%	8.0%		
Annual Income (in Saudi Riyals)	Less than 20,000	140	385	152	677	0.112
		15.7%	43.2%	17.1%	76.0%	
	20,000 - 40,000	14	57	24	95	
		1.6%	6.4%	2.7%	10.7%	
	40,000 - 60,000	7	16	9	32	
		0.8%	1.8%	1.0%	3.6%	
60,000 - 80,000	3	19	6	28		
	0.3%	2.1%	0.7%	3.1%		
Over 80,000	5	32	22	59		
	0.6%	3.6%	2.5%	6.6%		
Has any surgery been performed previously?	yes	49	170	85	304	0.072
		5.5%	19.1%	9.5%	34.1%	
	no	120	339	128	587	
		13.5%	38.0%	14.4%	65.9%	
Considered undergoing breast augmentation surgery	yes	2	70	75	147	0.001
		0.2%	7.9%	8.4%	16.5%	
	no	167	439	138	744	
		18.7%	49.3%	15.5%	83.5%	

Table (7) shows no significant difference in the perception of benefits score among different age groups ( $p=0.835$ ). Similarly, marital status does not seem to have a significant impact on the perception of benefits score ( $p=0.975$ ). However, gender does show a significant difference in the perception of benefits score ( $p=0.028$ ). The

majority of the respondents were female, and they had a higher perception of benefits compared to males. When considering nationality, Saudi respondents had a significantly higher perception of benefits compared to non-Saudi respondents ( $p=0.009$ ). Regarding location, there is a slight variation in the perception of benefits score among different regions, but it is not statistically significant ( $p=0.067$ ). Education level does not show a significant difference in the perception of benefits score ( $p=0.071$ ). Occupation also does not have a significant impact on the perception of benefits score ( $p=0.394$ ). Annual income does not show a significant difference in the perception of benefits score ( $p=0.308$ ). Previous surgeries and the consideration of breast augmentation surgery do not significantly affect the perception of benefits score ( $p=0.209$  and  $p=0.665$ , respectively).

Table (7): Perception of benefits score based on sociodemographic characters (n=891).

		Perception of benefits score			Total (N=891)	P value
		Low	moderate	high		
Age	18 -20	19	106	62	187	0.835
		2.1%	11.9%	7.0%	21.0%	
	21 -30	50	267	162	479	
		5.6%	30.0%	18.2%	53.8%	
	31 - 40	10	71	48	129	
		1.1%	8.0%	5.4%	14.5%	
	41- 50	7	38	24	69	
		0.8%	4.3%	2.7%	7.7%	
	51 -60	0	17	10	27	
		0.0%	1.9%	1.1%	3.0%	
marital status	Single	55	322	193	570	0.975
		6.2%	36.1%	21.7%	64.0%	
	Married	28	159	100	287	
		3.1%	17.8%	11.2%	32.2%	
	Divorced	3	15	10	28	
		0.3%	1.7%	1.1%	3.1%	
	widow	0	3	3	6	
		0.0%	0.3%	0.3%	0.7%	
Gender	Male	5	16	3	24	0.028
		0.6%	1.8%	0.3%	2.7%	
	Female	81	483	303	867	
		9.1%	54.2%	34.0%	97.3%	
Nationality	Saudi	74	433	241	748	0.009
		8.3%	48.6%	27.0%	84.0%	
	Non-Saudi	12	66	65	143	
		1.3%	7.4%	7.3%	16.0%	
Location	East	13	77	52	142	0.067
		1.5%	8.6%	5.8%	15.9%	
	Middle	12	92	62	166	
		1.3%	10.3%	7.0%	18.6%	
	North	22	61	35	118	

		2.5%	6.8%	3.9%	13.2%	
	South	14	117	67	198	
		1.6%	13.1%	7.5%	22.2%	
	West	25	152	90	267	
		2.8%	17.1%	10.1%	30.0%	
Education Level	Elementary school level	0	1	3	4	0.071
		0.0%	0.1%	0.3%	0.4%	
	Intermediate educational level	2	5	2	9	
		0.2%	0.6%	0.2%	1.0%	
	High school level	9	75	56	140	
		1.0%	8.4%	6.3%	15.7%	
	College University	72	385	215	672	
		8.1%	43.2%	24.1%	75.4%	
Postgraduate	3	33	30	66		
	0.3%	3.7%	3.4%	7.4%		
Occupation	Employed	21	144	94	259	0.394
		2.4%	16.2%	10.5%	29.1%	
	Homemaker	6	61	39	106	
		0.7%	6.8%	4.4%	11.9%	
	Retired	0	9	6	15	
		0.0%	1.0%	0.7%	1.7%	
	Student	49	243	148	440	
		5.5%	27.3%	16.6%	49.4%	
	Unemployed	10	42	19	71	
		1.1%	4.7%	2.1%	8.0%	
Annual Income (in Saudi Riyals)	Less than 20,000	71	383	223	677	0.308
		8.0%	43.0%	25.0%	76.0%	
	20,000 - 40,000	8	52	35	95	
		0.9%	5.8%	3.9%	10.7%	
	40,000 - 60,000	2	14	16	32	
		0.2%	1.6%	1.8%	3.6%	
	60,000 - 80,000	3	18	7	28	
		0.3%	2.0%	0.8%	3.1%	
	Over 80,000	2	32	25	59	
		0.2%	3.6%	2.8%	6.6%	
Has any surgery been performed previously	yes	29	182	93	304	0.209
		3.3%	20.4%	10.4%	34.1%	
	no	57	317	213	587	

		6.4%	35.6%	23.9%	65.9%		
Considered breast surgery	undergoing augmentation	yes	17	82	48	147	0.665
			1.9%	9.2%	5.4%	16.5%	
	no		69	417	258	744	
			7.7%	46.8%	29.0%	83.5%	

### Discussion:

Breast augmentation surgery has become increasingly popular over the years, with more and more women opting to undergo the procedure. However, despite the growing number of women undergoing breast augmentation surgery, there is still a lack of knowledge and understanding surrounding the procedure. Over the years, several studies have been conducted to assess women's knowledge of breast augmentation surgery, and the results have been varied [20, 21]. Breast augmentation surgery is a significant decision that many women consider at some point in their lives. It is a personal choice that can have a profound impact on a woman's self-esteem, body image, and overall well-being. However, the decision-making process for undergoing breast augmentation surgery is complex and influenced by a variety of factors [21].

According to our study results, 44.7% of participants had good knowledge score while 55.3% had poor knowledge score. This was higher than reported in previous studies. One study conducted by the American Society of Plastic Surgeons found that approximately 70% of women were aware of breast augmentation surgery. However, only 25% of these women had accurate knowledge of the procedure and its potential risks and complications. The study also found that women who were considering breast augmentation surgery were more likely to have accurate knowledge of the procedure than those who were not considering it [22]. Another study conducted in the United Kingdom found that women had a limited understanding of the different types of breast implants available and the potential risks associated with the procedure. The study found that women were more likely to be influenced by media and celebrity culture, rather than seeking out accurate information from healthcare professionals [23]. A study conducted in Brazil found that women had a good understanding of the potential risks and complications associated with breast augmentation surgery. However, the study also found that women were more likely to be influenced by the opinions of friends and family members, rather than seeking out accurate information from healthcare professionals [24]. Overall, the results of previous studies suggest that there is still a significant knowledge gap when it comes to breast augmentation surgery. Women who are considering the procedure should seek out accurate information from healthcare professionals, rather than relying on media and celebrity culture. Healthcare professionals should also take an active role in educating their patients about the potential risks and complications associated with breast augmentation surgery, and the different types of breast implants available. By doing so, women can make informed decisions about whether breast augmentation surgery is right for them.

Regarding perception, our study found that 23.9% of studied sample had high perception, 57.1% had moderate perception, and 19% had low perception. This was comparable to one study found that the most common motivations for undergoing the procedure were to improve self-esteem, enhance body image, and regain pre-pregnancy appearance. The majority of participants reported high levels of satisfaction with the results, highlighting the positive impact that breast augmentation surgery can have on women's self-perception [25]. Similarly, a study examined the psychological effects of breast augmentation surgery on women's body image and self-esteem. The findings revealed a significant improvement in body image and self-esteem post-surgery, suggesting that breast augmentation can have a positive psychological impact on women. These results further support the notion that breast augmentation surgery can be a valuable tool in enhancing women's perception of themselves and their bodies [26]. In contrast, a study focused on the potential negative psychological effects of breast augmentation surgery. The researchers found that a small percentage of participants experienced dissatisfaction with the outcomes, leading to feelings of regret and lower self-esteem. This highlights the importance of proper patient selection and thorough pre-operative counseling to ensure that women have realistic expectations and fully understand the potential risks and limitations of the procedure [27]. Previous studies have consistently shown that breast augmentation surgery can have a positive impact on women's perception of themselves, their body image, and their self-esteem. The majority of participants reported high levels of satisfaction with the outcomes, highlighting the potential psychological benefits of the procedure. However, it is crucial to acknowledge that a small percentage of women may experience negative psychological effects,

emphasizing the importance of proper patient selection and counseling. Overall, these studies provide valuable insights into women's perception of breast augmentation surgery and its implications for their lives.

One of the primary factors that influence a woman's decision to undergo breast augmentation surgery is societal pressure and cultural norms. In many societies, there is a pervasive emphasis on physical appearance, and women are often judged based on their looks. This can create a sense of insecurity and a desire to conform to societal beauty standards. Breast augmentation surgery is seen as a way to enhance one's physical appearance and achieve a more idealized body shape, thereby boosting self-confidence and improving social acceptance [20].

Media and advertising also play a significant role in shaping a woman's perception of her body and influencing her decision-making regarding breast augmentation surgery. Images of idealized female bodies are ubiquitous in magazines, movies, and social media platforms. These images often depict women with larger breasts, which can create a sense of inadequacy and a desire for breast augmentation surgery. Moreover, advertisements for breast augmentation procedures often promise improved self-esteem, increased attractiveness, and enhanced femininity, further fueling the desire for surgery [20, 21].

Personal body image and self-esteem are crucial factors that influence a woman's decision to undergo breast augmentation surgery. Many women who consider breast augmentation surgery may have experienced dissatisfaction with their breast size or shape for a long time. This dissatisfaction can impact their self-esteem, body image, and overall confidence. Breast augmentation surgery is seen as a way to address these concerns and achieve a more positive body image, thereby improving self-esteem and overall well-being [26].

Psychological factors such as a history of trauma, body dysmorphia, or mental health issues can also influence a woman's decision to undergo breast augmentation surgery. Some women may have experienced traumatic events or have a distorted perception of their bodies, leading them to seek surgical interventions as a means of coping or finding a sense of control. It is essential for healthcare professionals to assess and address these psychological factors before recommending or performing breast augmentation surgery [7, 18].

Another critical factor that influences a woman's decision-making regarding breast augmentation surgery is the influence of family, friends, and significant others. The opinions and support of loved ones can have a significant impact on a woman's decision to undergo surgery. Positive reinforcement, encouragement, and understanding from family and friends can provide validation and confidence in the decision to undergo breast augmentation surgery. Conversely, negative opinions or lack of support can create doubt and hesitation [20, 25].

Financial considerations also play a role in a woman's decision-making regarding breast augmentation surgery. The cost of the procedure, including surgeon's fees, anesthesia, and post-operative care, can be significant. Women must weigh the financial implications of the surgery and consider their ability to afford it. Additionally, the potential need for revision surgeries or complications should also be taken into account [2].

Lastly, the expertise and reputation of the surgeon and the surgical facility are critical factors that influence a woman's decision to undergo breast augmentation surgery. Women want to ensure that they are in the hands of a skilled and experienced surgeon who can provide safe and satisfactory results. The reputation of the surgical facility, including its safety record and patient satisfaction rates, can also influence a woman's decision to choose a particular surgeon or facility [5].

#### **4. Conclusion:**

In conclusion, the decision to undergo breast augmentation surgery is influenced by a variety of factors. Societal pressure, media influence, personal body image and self-esteem, psychological factors, support from loved ones, financial considerations, and the expertise of the surgeon and surgical facility all play a role in a woman's decision-making process. Knowledge of breast augmentation surgery was significantly associated with age and annual income, while perception about the surgery was significant with age and nationality. It is essential for healthcare professionals to understand and address these factors when counseling women considering breast augmentation surgery, ensuring that they make informed decisions that align with their goals, desires, and overall well-being.

#### **Ethics approval**

Institutional research ethics board approval was acquired before conducting any study-related procedures from Al Baha University with IRB No. REC/SUR/BU-FM/202390. A statement was included at the beginning of the questionnaire clarifying that the participation in this study is voluntary and that collected data will be anonymous and will only be used for this study.

#### **Conflicts of Interest**

The authors have no conflicts of interest to declare.

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