

# Privacy Awareness of Online Social Networking in Saudi Arabia

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# Agenda

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- Motivation
- Purpose of the study
- Methodology
- Data analysis and results
- Limitation
- Conclusion
- Future work

# Introduction

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- People are posting and sharing personal information online
  - raising significant online privacy issues
- Great amount of personal information being revealed by individuals every day
  - exposing users to various risk scenarios of misuse/abuse by others
- Serious privacy issues may arise
  - disrespecting social standards and legal provisions

# Introduction

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- Privacy is defined by Falahi et al. (2010) as

*the ability of an individual or group to seclude themselves, or information about themselves, and thereby express themselves selectively*

# Motivation

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- Massive growth of online social networks during 2013 has a direct impact on their usage in Saudi Arabia
- In Saudi Arabia
  - ✓ Twitter → 5 million
  - ✓ Facebook → 7.8 million
  - ✓ LinkedIn → 1 million

# Motivation

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- Snapchat has over 100 million snaps shared daily by Snapchat users
- In less than two years it has become a \$860 million company
- Saudi Arabia is one of its ten strongest markets
- Online social networks suffered data breaches in the past years:
  - In 2012, LinkedIn suffered a data breach of 6.46 million passwords
  - In 2013, Twitter, Pinterest, and Tumblr suffered a breach after their customer service provider, Zendesk, got hacked

# Purpose Of Study

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- Focusing on Saudi society, this study aims to analyze:
  - Various aspects of spoken (claimed) versus practiced (actual behavior) of privacy in online social networks in general
  - Some privacy issues pertinent to using Snapchat in particular
    - Such as privacy awareness and the associated behavior

# Methodology

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- An online survey was conducted to test privacy awareness in Saudi Society
- The survey was:
  - distributed using different social networking sites
  - available online
  - available in two languages: English and Arabic
- 455 responses were collected from the survey questionnaire
- Instruments of the survey were measured on a five-point Likert-scale
- The composite reliability values for all the measures were greater than 0.714



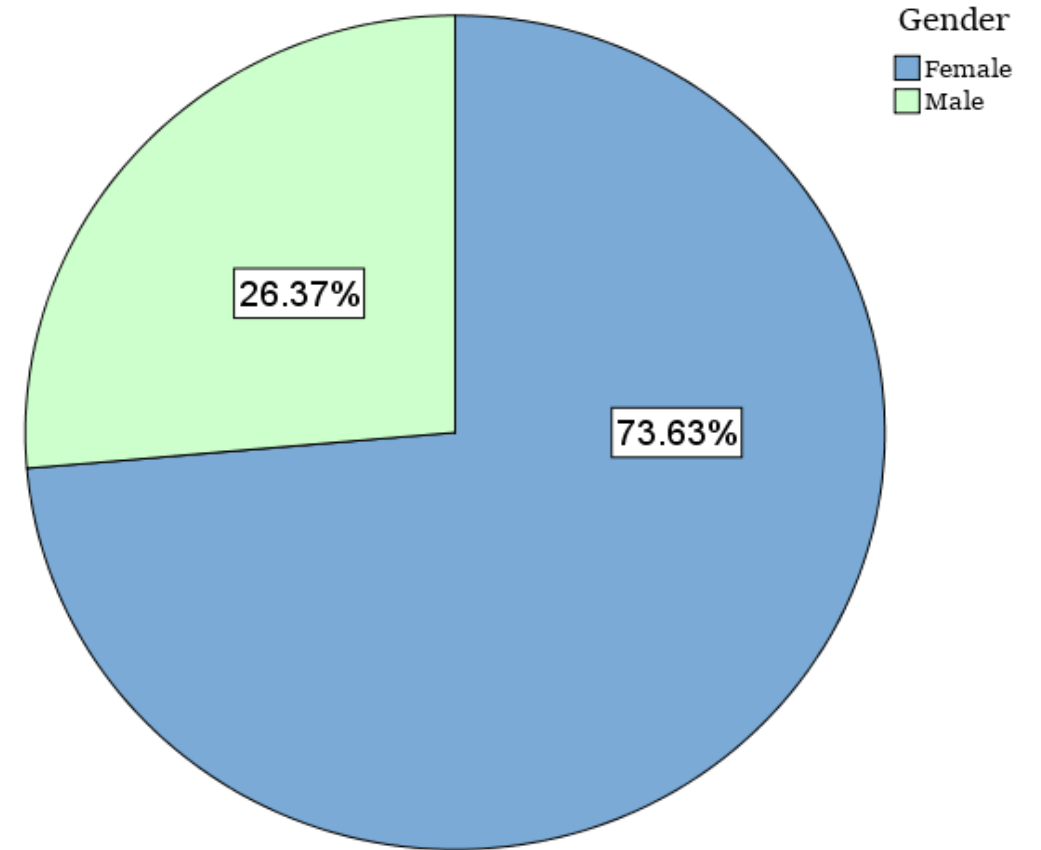
# DATA ANALYSIS AND RESULTS

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# Summary of Descriptive Statistics

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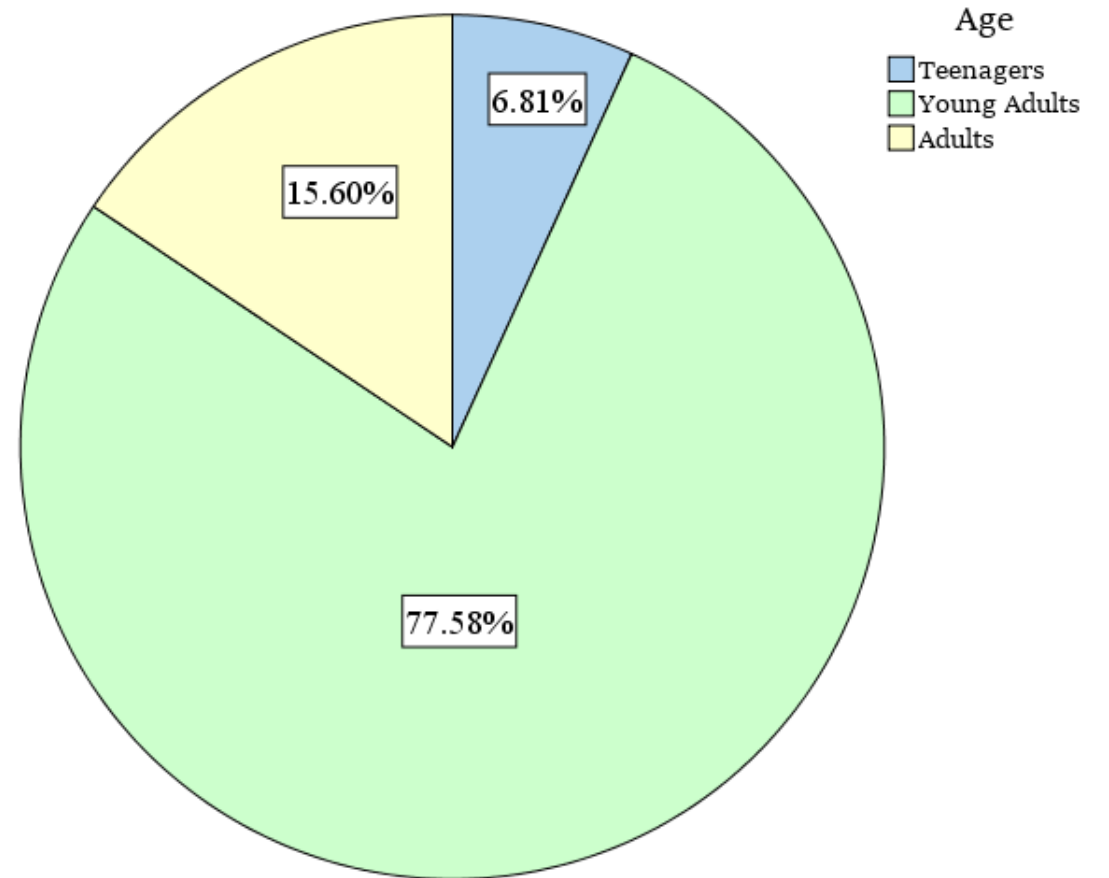
- A total of 455 participants (335 females and 120 males) participated in the survey



# Summary of Descriptive Statistics

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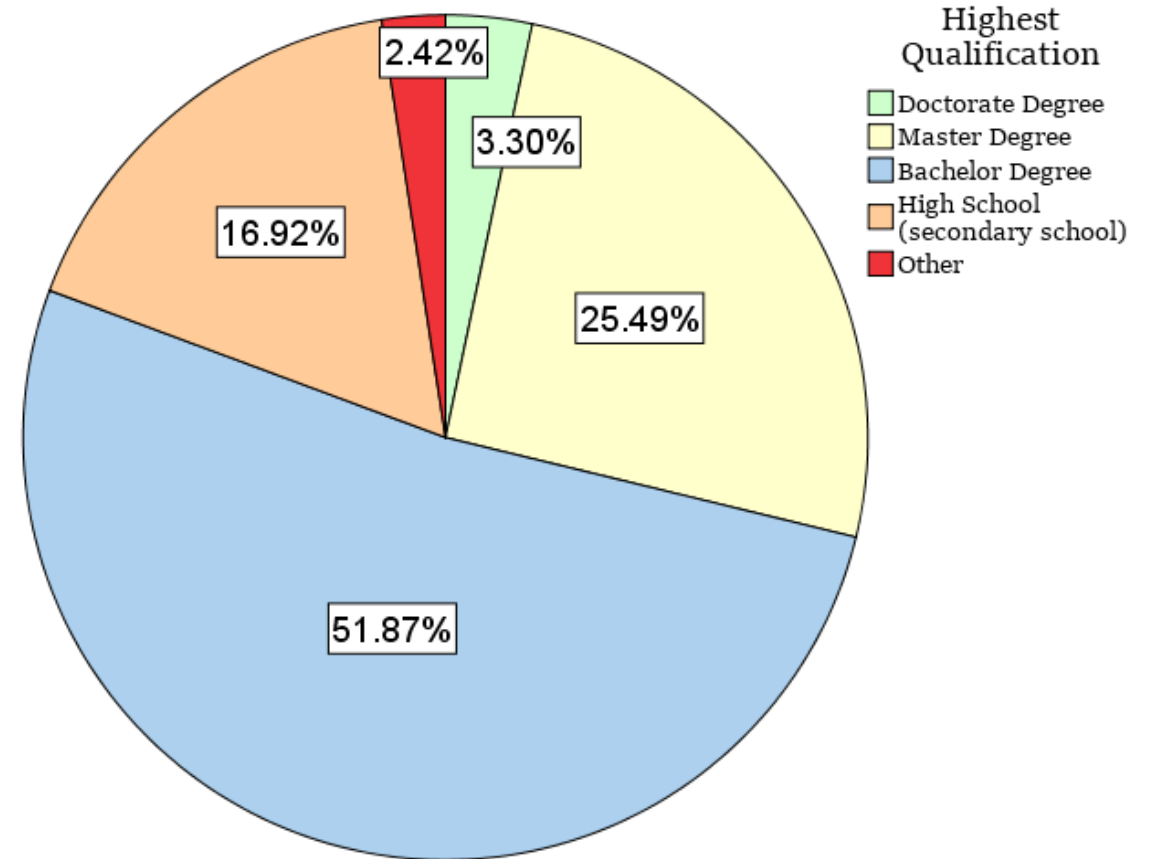
- The majority (77.6%) of the respondents belong to the Young Adults, 20-39 age group



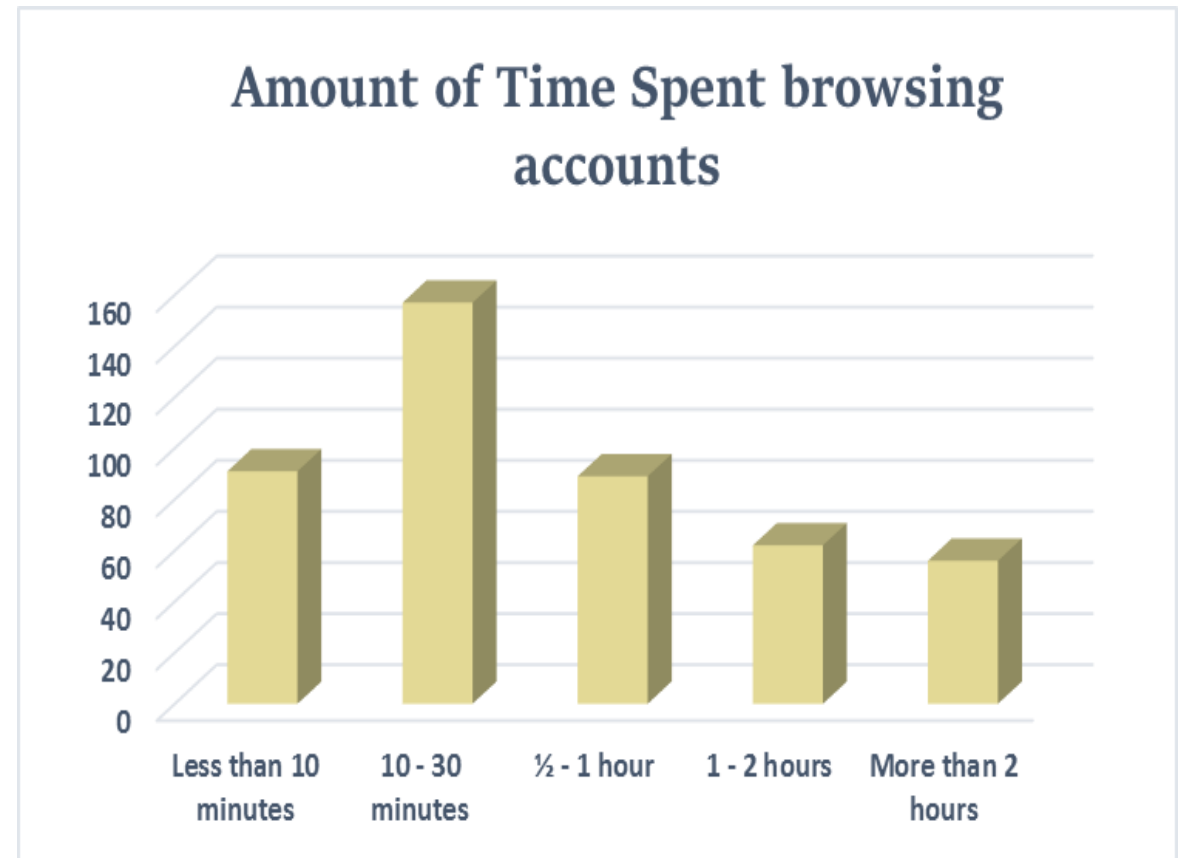
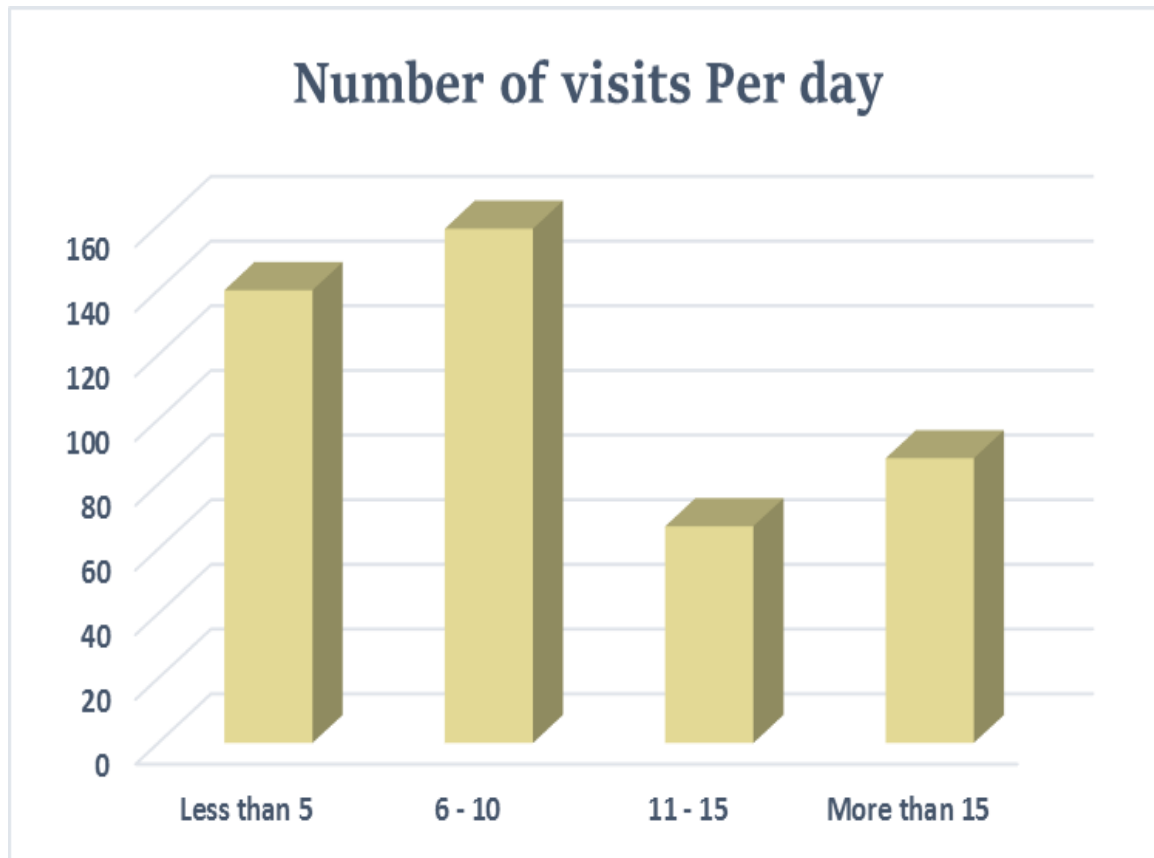
# Summary of Descriptive Statistics

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- 52% of the respondents has a bachelor's degree and 25.5% had a master's degree

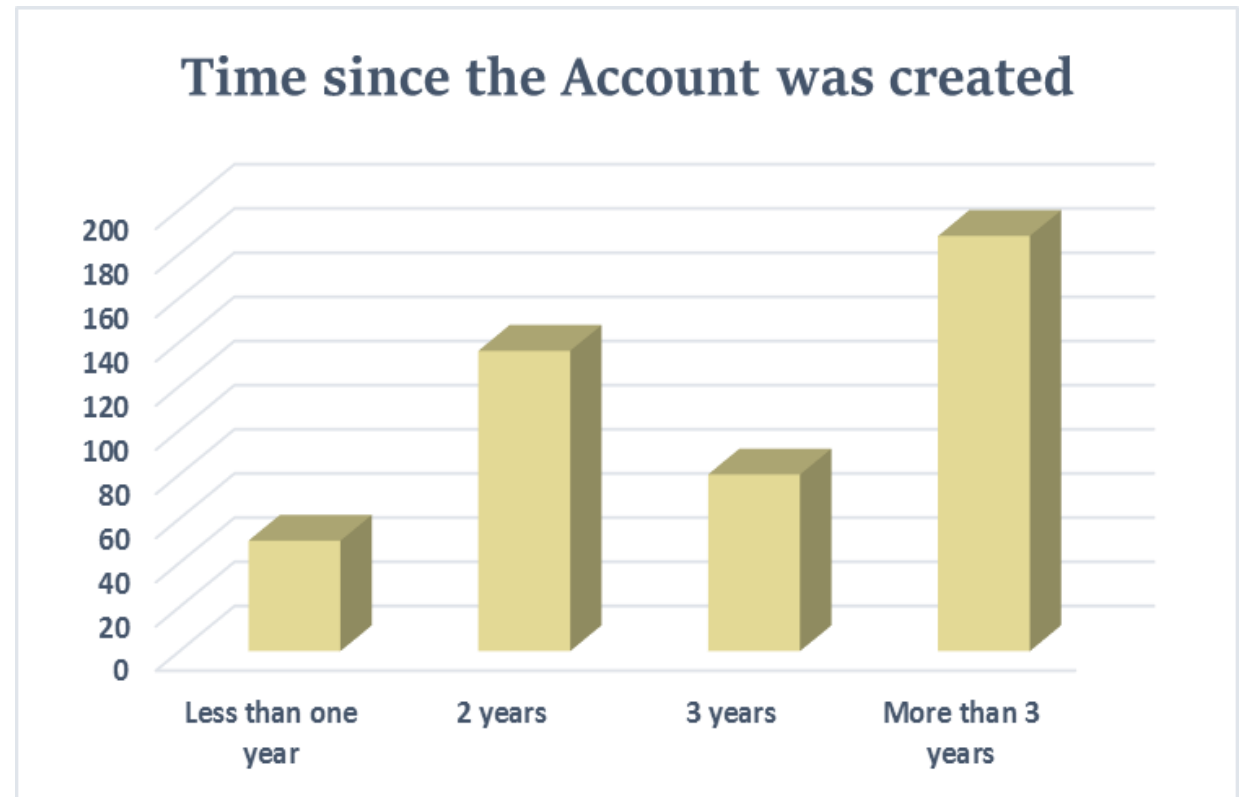


# Online Social Network Accounts



# Online Social Network Accounts

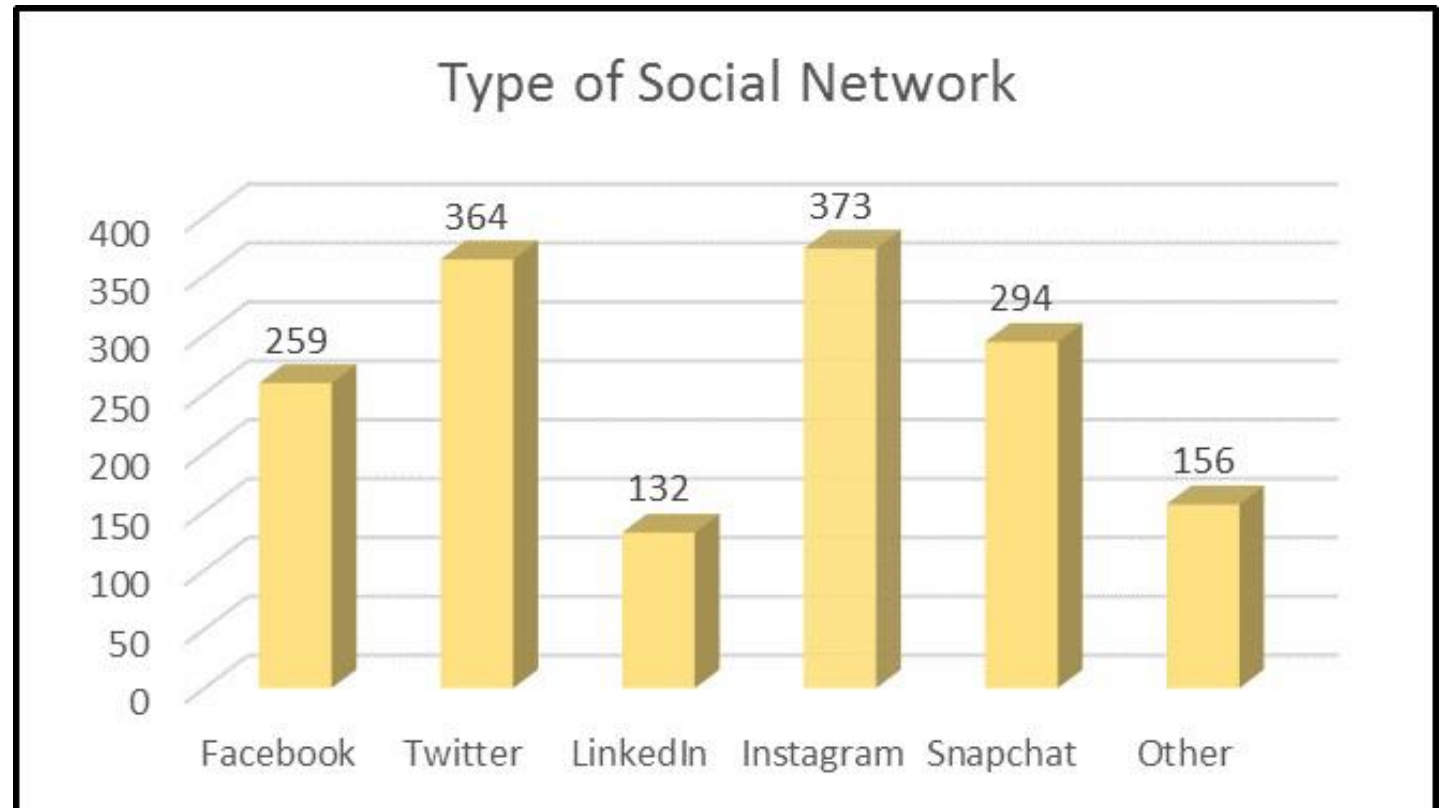
- A high percentage of the respondents (41.5%) had created their account more than three years ago, which highlights the recent popularity of online social networks



# Online Social Network Accounts

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- Almost 80% of the respondents has accounts on Twitter and 82% had accounts on Instagram



# Privacy Concern

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- Privacy concerns covered three items, which were measured on a Likert-style scale ranging from 1 = strongly disagree to 5 = strongly agree
- Higher scores indicated a greater concern about privacy
- The Cronbach alpha for these items was 0.729, mean = 4.015, and SD = 0.978



# Privacy Concern

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- (Fogel & Nehmad, 2009) stated that women were more concerned about privacy
- (Dhawan et al., 2014) found that there was:
  - no significant difference between men and women
  - no significant differences between teens, young adults, and adults

H1

- Women in Saudi Arabia are more concerned about privacy than men

H2

- Adults in Saudi Arabia are more concerned about privacy than teenagers and young adults

# Privacy Concern (Results)

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- Participants were highly concerned about the privacy of their accounts on social networks
- More than 70% of participants were worried about the misuse or abuse of their personal information
- Almost the same percentage were concerned about people online not being who they claim to be

# Privacy Concern (Results)

## For H1:

- A T-test conducted to compare the genders according to their privacy concerns
- Results show no significant difference

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Privacy Concern	Female	335	12.19	2.240	.122
	Male	120	12.23	2.035	.186

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Privacy Concern	Equal variances assumed	1.509	.220	-.146	453	.884	-.034	.233	-.491	.424
	Equal variances not assumed			-.153	229.287	.879	-.034	.222	-.472	.404

# Privacy Concern (Results)

## **For H2:**

- ANOVA test indicated no significant difference between the age groups

Descriptives								
Privacy Concern								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Teenagers	31	11.94	1.788	.321	11.28	12.59	7	15
Young Adults	353	12.20	2.239	.119	11.97	12.44	4	15
Adults	71	12.25	2.266	.269	11.72	12.79	5	15
Total	455	12.19	2.212	.104	11.99	12.40	4	15

ANOVA					
Privacy Concern					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.338	2	1.169	.238	.788
Within Groups	2220.027	452	4.912		
Total	2222.365	454			

# Information Revelation

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- Acquisti et al (2006) , Debatin et al. (2009), and Dhawan et al. (2014) reported that users still revealed great amounts of personal information, even though they claimed to understand privacy issues
- Young et al. (2009) study showed that high levels of concern for Internet privacy drove users to disclose less personal information

H3

- Privacy concerns in Saudi society are proportionate with information revelation practices.

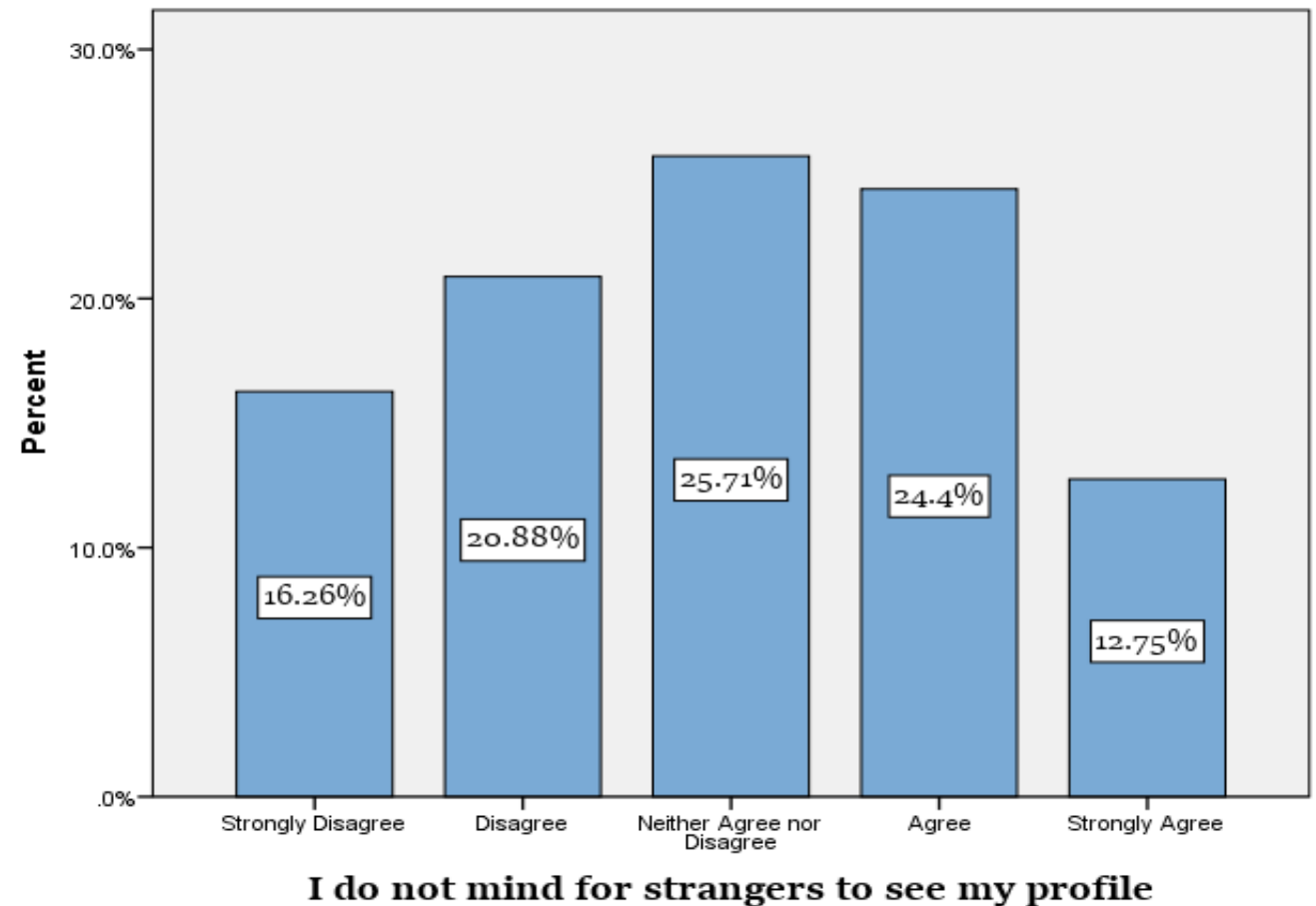
# Information Revelation

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- The information revelation measure covered four items
- Items were measured on a Likert-style scale ranging from 1 = strongly disagree to 5 = strongly agree
- Higher scores indicated that individuals revealed more information
- In this sample, the Cronbach alpha reliability was 0.758, mean = 3.175, and SD = 1.509

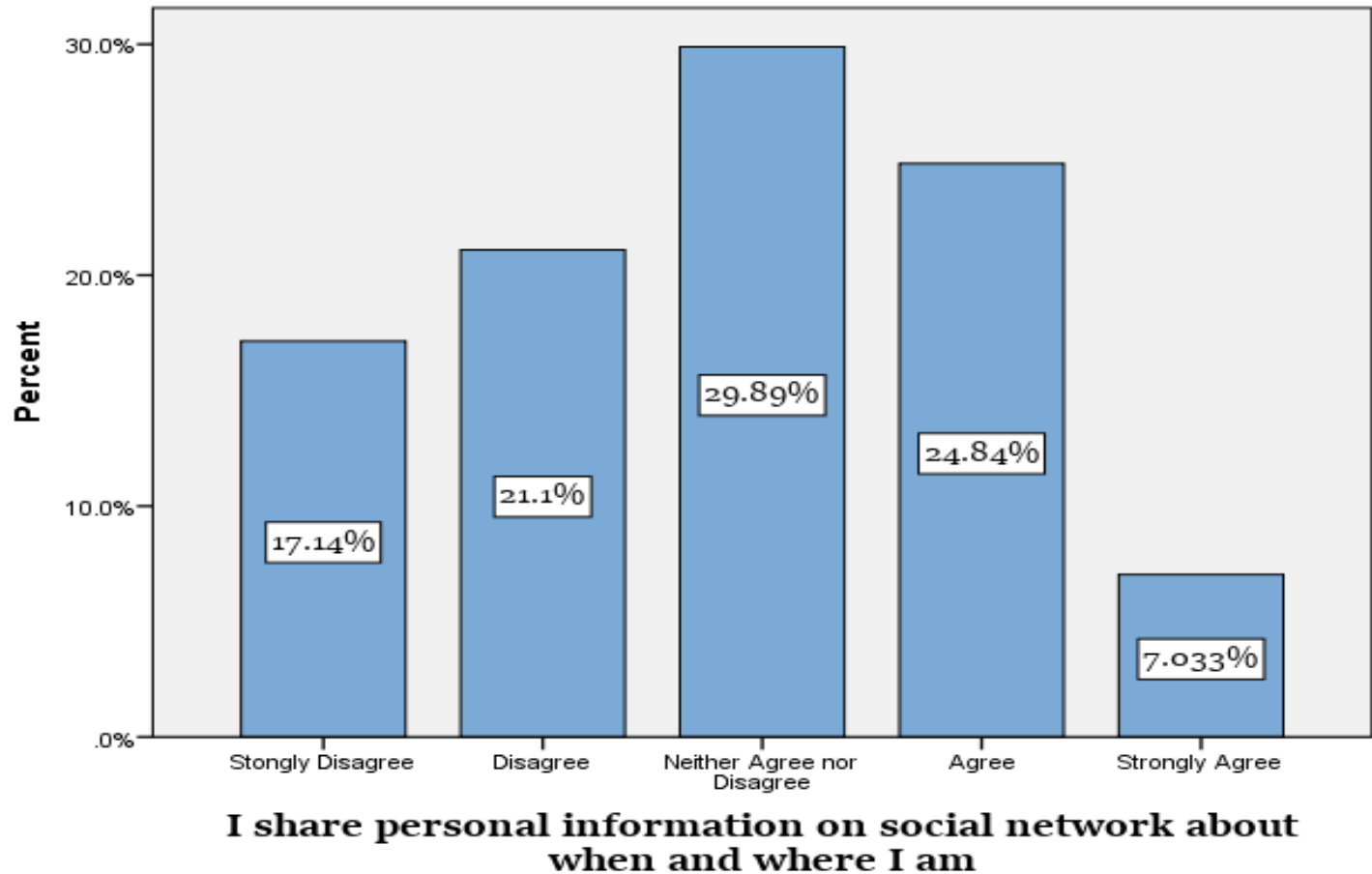
# Information Revelation

- The percentages were almost equal for respondents who accepted strangers' requests and allowed them to view personal profiles



# Information Revelation

- The respondents sharing personal information were fewer than those who did not share their information, yet the number of individuals sharing information was considered high





# Information Revelation

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The results showed that the means of the questions were high in comparison to the claimed privacy concerns

## Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
<b>I share personal information on social network about when and where I am</b>	455	1.0	5.0	3.165	1.184
<b>I do not mind accepting a friendship invitation from unknown person on my social network</b>	455	1.0	5.0	3.081	1.269
<b>I do not mind for strangers to see my profile</b>	455	1.0	5.0	3.035	1.271
<b>I post my daily life details very often</b>	455	1.0	5.0	3.418	1.186

# Correlation Analysis

- A Spearman's rank correlation analysis was conducted to find the relationship between the individuals privacy concerns and their protective actions
- Results showed a negative weak correlation (-0.102\*)
- Users were not revealing much information, but that did not reflect the high level of concern they claimed to have

			Correlation	
Spearman's rho			Privacy Concern	Information Revelation
	Privacy Concern	Correlation Coefficient	1.000	-.102*
		Sig. (2-tailed)		.029
		N	455	455
	Information Revelation	Correlation Coefficient	-.102*	1.000
		Sig. (2-tailed)	.029	
		N	455	455

\*. Correlation is significant at the 0.05 level (2-tailed).

# Awareness of Privacy Issues in Snapchat

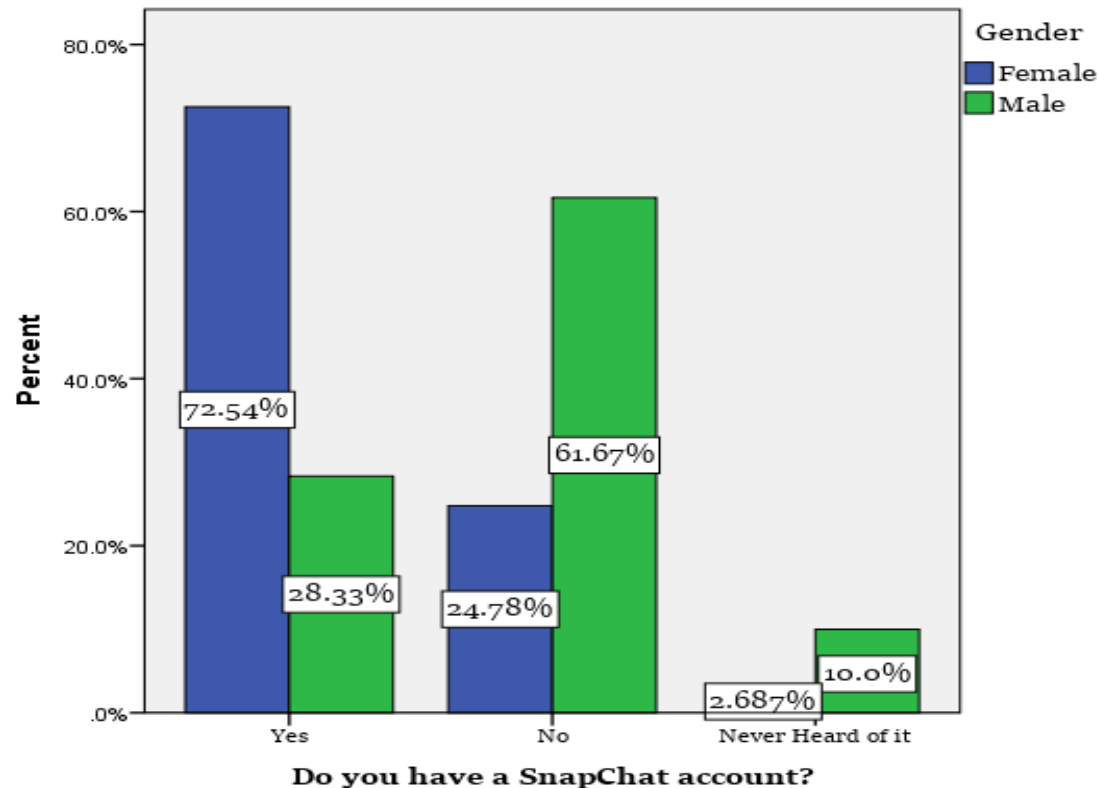
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- The awareness of privacy issues in Snapchat covered six items
- The items were measured on a Likert-style scale ranging from 1 = strongly disagree to 5 = strongly agree
- Higher scores indicated a greater awareness of privacy issues in Snapchat
- The sample Cronbach alpha reliability was 0.700



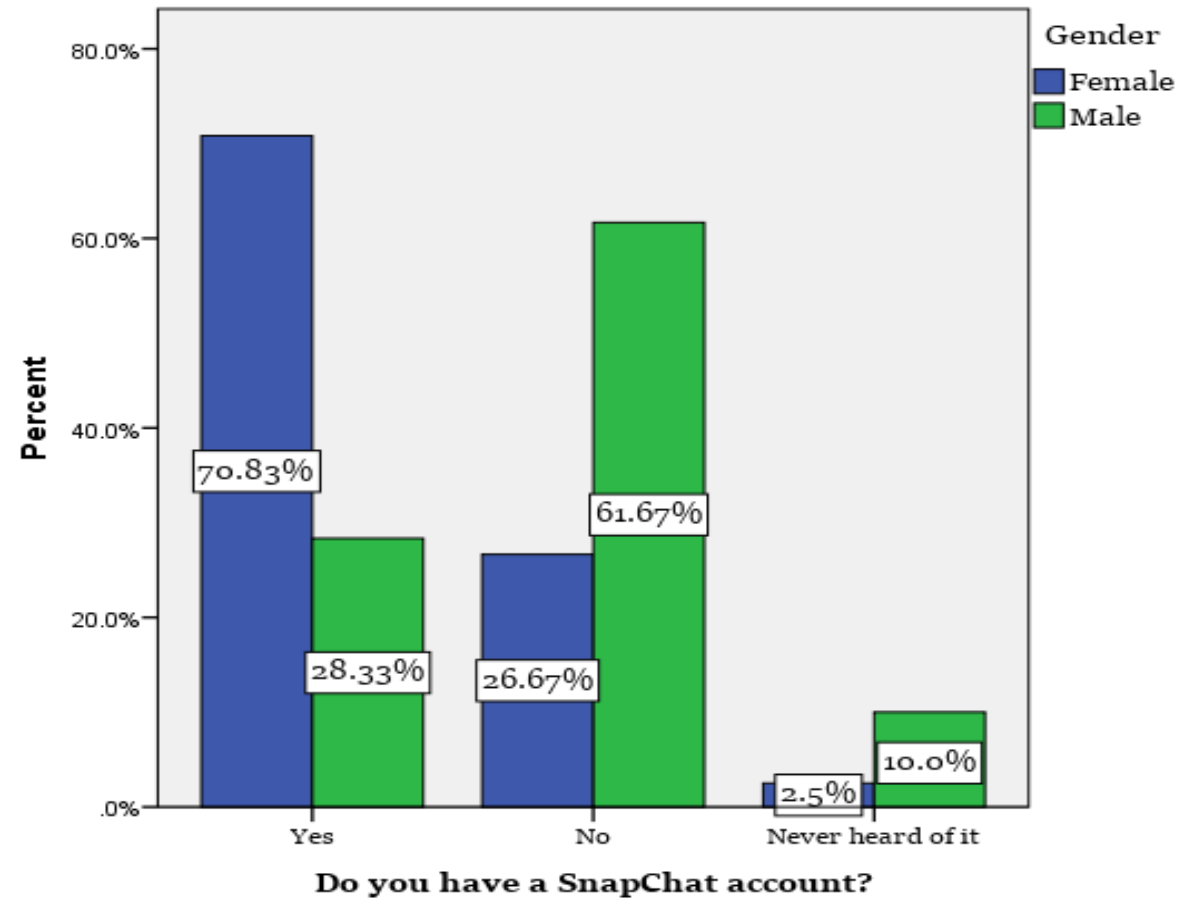
# Awareness of Privacy Issues in Snapchat

More than 60% of the respondents indicated that they have a Snapchat account



# Awareness of Privacy Issues in Snapchat

- Taking equal samples of females and males → the number of female respondents having Snapchat account is much higher than male respondents



# Awareness of Privacy Issues in Snapchat

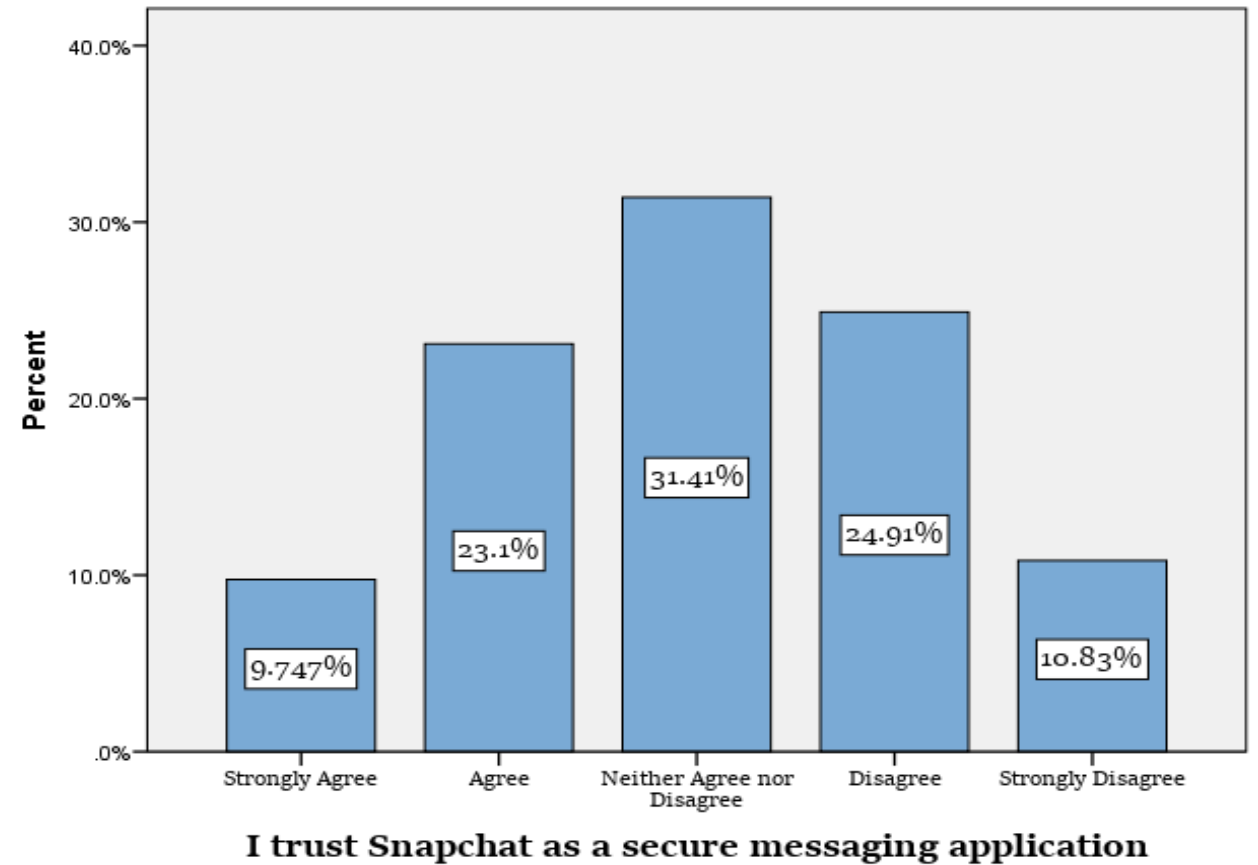
The results of the questions about the users awareness of risks while using Snapchat showed high levels of awareness

## Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
I trust Snapchat as a secure messaging application	277	1.0	5.0	3.040	1.1430
I use Snapchat for sensitive content	274	1.0	5.0	3.599	1.1608
I know that Snapchat pictures and videos are not permanently deleted from servers and devices	276	1.0	5.0	3.746	1.1318
I am aware of the possibility of retrieving deleted pictures and videos by hackers (malicious users)	276	1.0	5.0	3.699	1.1631
I know that Snapchat's privacy policy does not guarantee privacy of my pictures and videos	277	1.0	5.0	3.682	1.2129
I am aware that other applications save Snapchat pictures and videos on the receiver's device without informing the sender	277	1.0	5.0	4.126	1.1206

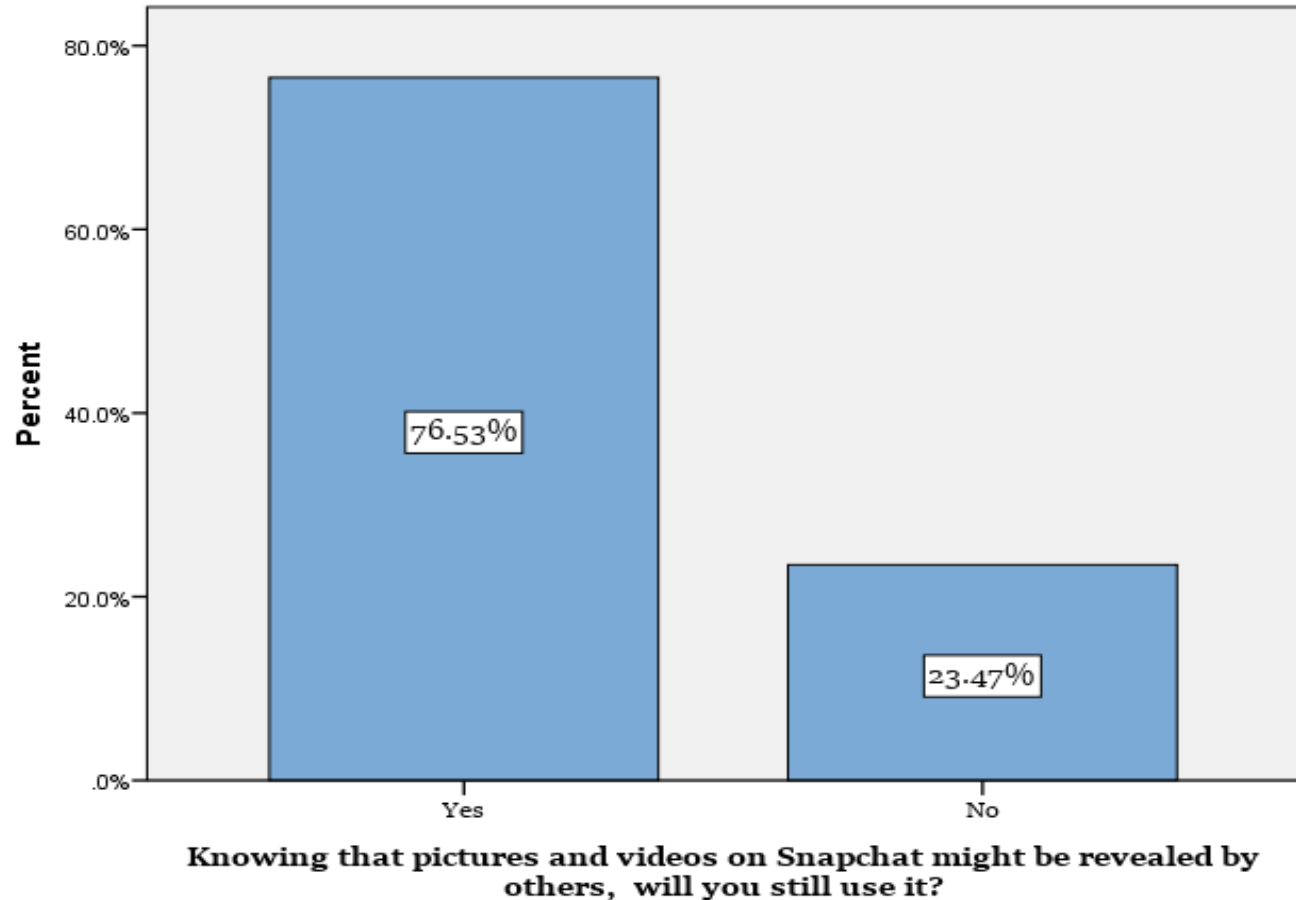
# Awareness of Privacy Issues in Snapchat

- The results from this question were not sufficient to show the level of the respondents trust in Snapchat



# Awareness of Privacy Issues in Snapchat

- 76% of respondents indicated that they would keep using it, because:
  - they would not post sensitive messages or any information that might harm them
  - they thought it was fun and their friends use it, even though their privacy was not guaranteed





# Limitation

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1. The survey used the self-reporting method rather than observation through interviews and demos
2. The majority of the survey participants were females and young adults, the sample was not sufficiently heterogeneous
3. Questions about Snapchat focused more on the users' awareness rather than their behavior

# Conclusion

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- On social networks in general
  - Users of online social networks in Saudi society are concerned about the privacy of their personal information
  - This concern was not proportionately reflected on their privacy protection behavior
- On Snapchat in particular
  - Users are highly aware of its privacy issues
  - Users are excited to keep using it and paying the privacy price!