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Twitter Privacy Concern: The Effect of Twitter Profile

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Abstract:

Privacy concern vary from one to another. Sensitive information related to finance and health are most of the concern. The vast spread of using social media/ micro-blogging platforms, i.e. Twitter, as a desirable channel of online communication, has changed the peoples' understanding of what is private communication and whether they should or should not be concerned about their privacy. This paper examines the relationship between the level of privacy concern of Twitter users and their gender, experience on Twitter, type of their Twitter account and type of their username. A survey in the form of a questionnaire has been conducted in Saudi Arabia. The research compares privacy concern from the perspective of male and female, old and new Twitter users, private and public account holders and nickname and real name username holders. Determining the Chi square and using T-test and ANOVA, this research shows that the individual's privacy concerns are affected by the Twitter users' profile; gender, number of the years on Twitter, the type of Twitter account and username.

Keywords- Social Media; Twitter; Privacy; Saudi Arabia;

I. INTRODUCTION

Twitter has become globally the tenth highest social networks site SNS with more than 336 million users, in 2018 [1]. Hundreds of million tweets around the world promote entertainment, commerce, politics and social activities around the world. Saudi Arabia has become the fourth most Twitter users country with more than 13 million users (4% of the world Twitter account) which also form 75% of the internet users in the country [1]. This promoting of Twitter as a social media and their effect on their user lifestyle comes with a question of how Twitter users consider privacy while they are actively engaged in this social media. The way twitter operates, for one asking the user "what is happening" raises a number of privacy concerns since that the aim of this SNS is to share personal information with other users [2].

The concept of privacy has been developed over time from 'the right to be let alone' in the 18th century to the 'the right to informational self-determination' in the current computer age. The identity disclosure and the ability to observe and link personal data online has become the key of the online privacy concern [3,4,5,6]. Moreover the interests in privacy depend on the persons' concept on what is personal information and therefore how; to control access to these information, to obtain autonomy, and to preserve the level of secrecy [7]. In addition, privacy interests are culturally relative, i.e. an action could be considered a serious violation of privacy in one culture, and perfectly acceptable in another culture [8,9,6].

This research studies the effect of Twitter users' profile, i.e. gender, number of years on Twitter, type of Twitter account and type of username on Twitter users' level of privacy concern while they are active on Twitter. This paper organized as following: section 2 provides a summary literature review on Twitter privacy; section 3 describes the methodology that is used to analyze the relationship between the level of privacy concern and twitter profile; section 4 outlines the detailed results of the above mentioned relationship; then a theoretical



analysis about the effect of twitter profile on the privacy perspective in Saudi's twitter users has been described in section 5. Finally, the conclusion and the future work has been included in section 6.

II. TWITTER AND PRIVACY

Online social media activities are driven by a number of social- oriented motivations for example offering reciprocal relationships (Kwak, Lee, Park, & Moon, 2010)[12] and satisfy intellectual stimulation [12, 13, 14]. In Facebook and LinkedIn the relationships are usually reciprocal by default , though in Twitter and Instagram the relationship is asymmetrical, followers/followings ratio, in which users can follow other users with no automatically following back, so users can control their preferable followers/followings ratio, for example make sure that they follow fewer users than they are followed by and vice versa. Therefore, Twitter, is not categorized as a "social network" site, it is rather considered as a "micro-blogging" site due to its application on information sharing more than "friend" people in reciprocal connections manner [12, 13, 14, 15, 16,17]. In addition, Twitter, developed a user innovation, i.e. hashtag, in which it is considered its central feature and can be fairly defined as a user-generated content. Twitter reached 125 million active hashtags each day on 2017 [14, 18, 19]. A hashtag is a hyperlink that is represented by a hash symbol (#) and keyword/keywords, with a primarily use as a searching, grouping, or tracking function [20]. Twitter users can engage in the hashtag feature by either publishing a hashtag with their intended message, or engage in an existent hashtag by viewing its contents, i.e. words, pictures, videos or links or adding contents to it [13, 21]. Furthermore, Twitter users, unlike users of other social-networking sites such as Facebook, can generally choose between a private and a public account [17].

With regards to privacy, Twitter's privacy policy states, clearly, on one hand, a number of privacy limitations on their application; first, Tweets are immediately viewable and searchable by anyone around the world; second, some personal information from users such as device information and IP address are collected in all form of usages including viewing, searching, publishing, and responding to Tweets or mentions; third, users can also share more personal information such as email address, phone number, address book contacts, and a public profile in order to secure their accounts and be able to see relevant Tweets, people to follow, events, and advertisements; and fourth, alongside of these personal information that users share with Twitter, their read content, tweets, likes and retweets, are also collected and used to categories them according to their age, languages and other characteristics and therefore determine what topics the users' may be interested in and show them more relevant content. On the other hand, Twitter also explains some privacy protection measurements to the users. How to control their information, account security, marketing **preferences**, applications' that can access your account through Twitter privacy settings by limiting the collected data from users and how they use it, and to control address book contacts users uploaded to Twitter, additionally there are non-public ways to communicate on Twitter such as protected Tweets and direct messages DM, and under a pseudonym [23,24,25,26].

Moreover, a number of researches on online privacy, particularly towards Twitter, find out that Internet users hardly read or understand privacy terms and conditions, or, even, realize that their tweets are publicly viewable at all. Researchers also conclude that Twitter users prefer to tweet anonymously and are more comfortable to be asked for consent before they give up their information. Furthermore, even users who take extra privacy measures on Twitter and tweet under protected accounts, in which they limit Tweet visibility to the approved followers only, may suffer privacy violation under re-tweets function [27.28.29]. Another source of privacy violation on Twitter could be due to unintentional information revealed by users themselves on their plans and statues such as vacation, medical conditions and domestic issues [30] . Fiesler, C. and Proferes, N., 2018, study the effect of demographic characteristics of Twitter users, in particularly the users' ages, on their level of concern with regards to the use of their information on Twitter, and find no statistically significant evidence of such effect and they conclude that the effect is more context-based [15].

III. DATA COLLECTION

In this study the relationship between the level of privacy concern of Twitter users and their gender, experience on Twitter, type of their Twitter account and type of their username is examined using a questionnaire designed to gather data on both the users' profile and privacy concern level from the perspective of the Twitter users. With regards to the user profile (TU), four questions were asked to identify the users' gender, type of Twitter accounts and username, and the Twitter privacy policy awareness. Regarding the level of privacy concern four questions were asked using a five-point scale, to measure the Twitter usage in on hand , and what is considered as Private Information, and the general perception regarding Twitter privacy concern and trust, on other hand [31, 32,33,34,35,36]. All the research variables (TUP, TPI, TPCPI and TU) are shown in table 1.

Table 1: The Resach Variables TUP, TPI, TPCPI and TU

Variables	Questions
Twitter's Users Profile TUP	What is your gender? (G) •
	Do you have a private or public account on "Twitter"? (TAT) •
	What type of username do you have on "Twitter"? (TUT), •
	• Did you read the privacy policy before you create an account on "Twitter"? (RTPP)
Personal Information TPI	When I use Twitter I consider the following information as a personal information: • First Name - Full Name - Email Address - Home Address - Phone Number • Date of Birth - Photographic Image - Credit Card Number - Job • Opinion - Nationality – Religion

Privacy and Trust while using Twitter TPCPI	<p>When I use Twitter, I hesitate before I do the following Twitter's actions in order to preserve my privacy:</p> <ul style="list-style-type: none"> • Reading others tweets without creating account • Creating anonymous account - Creating real name account • Adding your bio - Adding your profile picture - Adding following • Accepting followers - Tweeting with personal information • Tweeting with personal photo - Tweeting with personal opinion • Tweeting with public news - Retweeting others tweets • Creating a hashtag - Retweeting a hashtag <p>I am concerned that the information I submit on Twitter could be:</p> <ul style="list-style-type: none"> • Misused - Found by others - Used by others • Used in a way that I did not expected • Used in a way that I am not comfortable with • Used in a way that could threaten my security • Used in a way that could invade my privacy • Used in a way that could create unexpected problems
Twitter Usage TU	<ul style="list-style-type: none"> • How many times you log on the "Twitter" a day? • How much total time that you spend on "Twitter" a day? • How long have you been using "Twitter"? • How do you access Twitter?
Twitter Activates	<ul style="list-style-type: none"> • Following people - Accept a follower - Read a tweet • Favorite a tweet – Retweet - Write a tweet • Create a hashtag - Post on a hashtag • Link your accounts on Twitter and Facebook • Disable others to retweet your tweet • Disable others to favorite your tweet • Disable the automated followers • Restrict timeline to messages that were mentioned in • Restrict timeline to messages from following

T-Test was used to examine the effect of the four factors on what is considered as Private Information and the level of the privacy concern about their Private Information while been active in and contingency analyses was used to examine the four factors on Twitter usage, and Twitter activities [10,11].

IV. RESEARCH FINDING

185 undergraduate male and female students, age 18 -26, from Taif University were participated in this study. The participants' personal and Twitter profile are summarized in Table 2.

Table 2 shows that the sample include; almost equal number of male and female whose experience on Twitter vary from year to more than 5 years. Also, type of accounts three times public account compare with private account and two times real name compare with nick name.

Table 2: Twitter's Users' Profile

Gender	Male	Female	
	94	91	
Number of years on Twitter	< 1	1 – 2	2 – 3
	28	37	36
	3 – 4	4 – 5	> 5
	55	19	10
Type of Account on Twitter	Private	Public	
	51	134	
Type of Username on Twitter	Nickname	Real Name	
	62	123	
Read Twitter Privacy Policy	Yes	No	not remember
	51	88	46

Tables 3 and 4 outline the collected data, in which the data on the participants' Twitter usages TU are described table 3, and the participants' privacy prescription including their perception on what is private Information and the level of the privacy concern about their Private Information and Internet trust while been active in Twitter are described in table 4.

As can be read in table 3 the most private information according to the participant is First Name with 57.3 % and the least private information are both Full Name and Credit Card Number each with 33%. Moreover, the most -privacy- concern is that Twitter made me give up personal information with 76.5%..

Table 3: Twitter Usage TU description of the participants

TU Description	Units	Frequency	%
Access Twitter "hour/day"	< 1	54	29.2
	1-2	32	17.3
	3-4	24	13.0
	5-6	24	13.0
	7-8	12	6.5
	> 8	39	21.1
Twitter account "years"	< 1	28	15.1
	1-2	37	20.0
	3-4	36	19.5
	5-6	55	29.7
	7-8	19	10.3
	> 8	10	5.4
Following people	< 1 a day	16	8.6
	Once a day	27	14.6
	Once a week	37	20.0
	< 1 a week	55	29.7
	Never	5	27.0
Accept follower	< 1 a day	33	17.8
	Once a day	33	17.8
	Once a week	46	24.9
	< 1 a week	54	29.2
	Never	19	10.3
Read a tweet	< 1 a day	94	50.8

	Once a day	42	22.7
	Once a week	24	13.0
	< 1 a week	16	8.6
	Never	9	4.9
Favorite a tweet	< 1 a day	43	23.2
	Once a day	50	27.0
	Once a week	37	20.0
	< 1 a week	28	15.1
	Never	27	14.6
Retweet	< 1 a day	39	21.1
	Once a day	51	27.6
	Once a week	36	19.5
	< 1 a week	35	18.9
	Never	24	13.0
Write a tweet	< 1 a day	24	13.0
	Once a day	43	23.2
	Once a week	40	21.6
	< 1 a week	46	24.9
	Never	32	17.3
Create a hashtag	< 1 a day	11	5.9
	Once a day	17	9.2
	Once a week	25	13.5
	< 1 a week	39	21.1
	Never	92	49.7
Post a hashtag	< 1 a day	16	8.6
	Once a day	21	11.4
	Once a week	38	20.5
	< 1 a week	46	24.9
	Never	64	34.6
Link your accounts on Twitter and Facebook	< 1 a day	12	6.5
	Once a day	17	9.2
	Once a week	15	8.1
	< 1 a week	16	8.6
	Never	125	67.5
Disable others to retweet your tweet	< 1 a day	7	3.8
	Once a day	20	10.8
	Once a week	16	8.6
	< 1 a week	8	4.3
	Never	134	72.4
Disable others to favorite your tweet	< 1 a day	6	3.2
	Once a day	19	10.3
	Once a week	18	9.7
	< 1 a week	8	4.3
	Never	134	72.4
Disable the automated followers	< 1 a day	14	7.6
	Once a day	17	9.2
	Once a week	20	10.8
	< 1 a week	5	2.7
	Never	129	69.7
Restrict timeline to messages that were	< 1 a day	13	7.0

mentioned in	Once a day	18	9.7
	Once a week	32	17.3
	< 1 a week	24	13.0
	Never	98	52.9
Restrict timeline to messages from following	< 1 a day	22	11.9
	Once a day	23	12.4
	Once a week	39	21.1
	< 1 a week	18	9.7
	Never	83	44.8
Total Number of Participants		185	

Table 4: Participants' Privacy Perspective

Twitter Private Information TPI	Agree	Disagree
First Name	57.3	42.7
Full Name	33	67
Email Address	54	46
Home Address	36.8	63.2
Phone Number	37.3	62.7
Date of Birth	40.5	59.5
Photographic Image	37.8	62.2
Credit Card Number	33	67
Job	37.8	62.2
Opinion	47.6	52.4
Nationality	53	47
Religion	51.4	48.6
Twitter Privacy Concern TPC	Agree	Disagree
When I use Twitter I am concerned about reading others tweets without creating account	29.2	70.8
When I use Twitter I am concerned about creating anonymous account	28.6	71.4
When I use Twitter I am concerned about creating real name account	53	47
When I use Twitter I am concerned about adding your bio	26.5	73.5
When I use Twitter I am concerned about adding your profile picture	48.1	51.9
When I use Twitter I am concerned about adding following	57.8	42.2
When I use Twitter I am concerned about accepting followers	50.8	49.2
When I use Twitter I am concerned about tweeting with personal information	33	67
When I use Twitter I am concerned about tweeting with personal photo	28.1	71.9
When I use Twitter I am concerned about tweeting with personal opinion	61.1	38.9
When I use Twitter I am concerned about tweeting with public news	52.4	47.6
When I use Twitter I am concerned about retweeting others tweets	60	40
When I use Twitter I am concerned about creating a hashtag	33.5	66.5
When I use Twitter I am concerned about retweeting a hashtag	37.8	62.2
I am concerned that the information I submit on Twitter could be misused	67.6	32.4
I am concerned that the information I submit on Twitter could be found by others	54.6	45.4
I am concerned that the information I submit on Twitter could be used by others	58.9	41.1
I am concerned that the information I submit on Twitter could be used in a way that I did not expect	62.2	37.8
I am concerned that the information I submit on Twitter could be used in a way that I am not comfortable with	64.3	35.7
I am concerned that the information I submit on Twitter could be used in a way that could threat my security	65.9	34.1

I am concerned that the information I submit on Twitter could be used in a way that could invade my privacy	63.8	36.2
I am concerned that the information I submit on Twitter could be used in a way that could create unexpected problems	64.9	35.1
Twitter collect personal information via registered Twitter account	57.3	42.7
Twitter collect IP Address and web browser via registered Twitter account	56.2	43.8
Twitter made me give up personal information	86.5	13.5

In order to examine the effect of the four factors namely, the gender of the twitter users' (G), their Twitter account and username types (TAT) and (TUT), and whether reading Twitter privacy policy or not (RTPP), on four variables specifically, their Twitter usage (TU), and privacy concern (TPC), what is considered as Private Information (TPI) and the level of the privacy concern about their Private Information and internet trust while been active in Twitter (TPCPI). T-Test and contingency analyses been conducted [10,11], the earlier was used to examine the effect of the four factors on the what is considered as Private Information and the level of the privacy concern about their Private Information while been active in Twitter (and the later to examine the four factors on Twitter usage, and Twitter activities Tables 5 and 6).

Table 5: The effect of G, TAT, TUT and RTPP on TU and TPC

Variables	Male		Female		T	Eta	p	Different?
	Mean	SD	Mean	SD				
How much total time that you spend on "Twitter" a day?	2.2128	1.52310	2.1319	1.51444	2.79	0.040801	0.00	Small Difference
How long have you been using "Twitter"?	2.9574	1.44367	3.3736	1.34700	-2.028	0.02198	0.00	Small Difference
How do you access Twitter?	3.2553	1.08693	3.3626	.96051	5.44	0.139203	0.00	Moderate Difference
Link your accounts on Twitter and Facebook	3.9255	1.43863	4.5275	1.05768	-3.234	0.054062	0.001	Small Difference
Disable others to retweet your tweet	4.0957	1.34460	4.5385	1.05733	-2.484	0.032617	0.014	Small Difference
Disable others to favorite your tweet	4.0426	1.31913	4.6264	.98487	-3.402	0.059482	0.001	Small Difference
Disable the automated followers	3.9255	1.43863	4.4505	1.22260	-2.671	0.037522	0.008	Small Difference
Restrict timeline to messages that were mentioned in	3.7340	1.32125	4.1868	1.29024	-2.358	0.029487	0.019	Small Difference
Variables	Private		Public		T	Eta	p	Different?
	Mean	SD	Mean	SD				
How many times you log on the "Twitter" a day?	2.6863	1.80544	3.3060	1.92032	-2.049	0.022428	.043	Small Difference
How much totl time that you spend on "Twitter" a day?	1.7647	1.17624	2.3284	1.60252	-2.287	0.027787	.023	Small Difference
How long have you been using "Twitter"?	2.5098	1.30188	3.4104	1.37219	-4.142	0.085714	.000	Small Difference
Disable others to retweet your tweet	3.7843	1.51412	4.5149	1.03862	-3.739	0.070972	.000	Small Difference
Disable others to favorite your tweet	3.9216	1.41199	4.4851	1.07420	-2.912	0.044285	.004	Small Difference
Disable the automated	3.7255	1.55021	4.3582	1.24092	-	0.043532	.004	Small

followers					2.886			Difference
Variables	Nickname		Real name		t	Eta	p	Different?
	Mean	SD	Mean	SD				
How much total time that you spend on "Twitter" a day?	1.8548	1.29117	2.3333	1.59747	-2.045	0.022342	.042	Small Difference
Variables	Read		Not Read		T	Eta	p	Different?
	Mean	SD	Mean	SD				
How do you access Twitter?	3.0392	1.18255	3.4104	.94362	-2.224	0.026317	.027	Small Difference
Following people	3.1765	1.29160	3.6493	1.24004	-2.249	0.026896	.027	Small Difference
Accept a follower	2.5686	1.30008	3.1119	1.22419	-2.581	0.035123	.012	Small Difference
Retweet	2.3137	1.06752	2.9179	1.38764	-2.808	0.041307	.006	Small Difference
Write a tweet	2.6667	1.21106	3.2687	1.29872	-2.961	0.04572	.004	Small Difference
Create a hashtag	3.3725	1.38507	4.2537	1.10832	-4.499	0.099591	.000	Moderate Difference
Post on a hashtag	3.1961	1.41449	3.8284	1.20479	-2.826	0.041816	.006	Small Difference
Link your accounts on Twitter and Facebook	3.8627	1.49692	4.3582	1.19147	-2.349	0.029269	.020	Small Difference
Disable the automated followers	3.6863	1.64305	4.3731	1.18684	-3.146	0.051309	.002	Small Difference
Restrict timeline to messages that were mentioned in	3.5098	1.47475	4.1269	1.22273	-2.893	0.043735	.004	Small Difference
Restrict timeline to messages from following	3.1373	1.48350	3.8284	1.40636	-2.872	0.043129	.005	Small Difference

Table 6: The effect of G, TAT, TUT and RTPP on TPI and TPCIP

Variables	Male	Female	Chi-square	Significance (p)
concerned about retweeting others tweets	51.1	69.2	6.358	0.012
concerned that the information I submit on Twitter could be misused	56.4	79.1	10.909	0.001
concerned that the information I submit on Twitter could be found by others	46.8	62.6	4.673	0.031
concerned that the information I submit on Twitter could be used by others	50	68.1	6.280	0.012
concerned that the information I submit on Twitter could be used in a way that I did not expected	53.2	71.4	6.538	0.011
concerned that the information I submit on Twitter could be used in a way that I am not comfortable with	52.1	76.9	12.388	0.000

concerned that the information I submit on Twitter could be used in a way that could threaten my security	57.4	74.7	6.147	0.013
concerned that the information I submit on Twitter could be used in a way that could invade my privacy	55.3	72.5	5.927	0.015
concerned that the information I submit on Twitter could be used in a way that could create unexpected problems	56.4	73.6	6.032	0.014
Third: Comparison of Private and Public Twitter Account	Twitter Account (%)		Chi-square	Significance (p)
Variables	Private	Public		
Home Address	21.6	42.5	6.987	0.008
Phone Number	23.5	24.5	5.707	0.017
Credit Card Number	19.6	38.1	5.691	0.017
I am concerned about reading others tweets without creating account	41.2	24.6	4.895	0.027
Forth: Comparison of Real name and Nick name Twitter Account	Twitter Username (%)		Chi-square	Significance (p)
Variables	Nickname	Real Name		
Photographic	25.8	43.9	5.739	0.017
When I use Twitter I am concerned about creating anonymous account	41.9	22.0	8.054	0.005
When I use Twitter I am concerned about creating real name account	25.8	66.7	27.626	0.000
When I use Twitter I am concerned about adding your bio	12.9	33.3	8.836	0.003
Twitter made me give up personal information	95.2	82.1	6.004	0.014
Second: Effect of Reading Privacy Policy	Read PP (%)		Chi-square	Significance (p)
Variables	Yes	No.		
concerned about tweeting with personal information	45.1	28.4	4.684	0.030
concerned about tweeting with personal photo	41.2	23.1	5.951	0.015

The summary of the effect of the four factors; the gender of the twitter users (G); their Twitter account (TAT) and username (TUT) types, and reading Twitter privacy policy (RTPP) on the four variables; 1) Twitter usage TU, 2) privacy concern TPC, 3) Private Information TPI and 4) the level of the privacy concern about their TPCPI are described as following.

First: Twitter Usage (TU):



In term of the Twitter Usage, T-Test analysis shows the effect of the four factors; G, TAT, TUT and RTPP as follows:

- There is a small difference between male and female in total time spent on "Twitter" a day and the time been using "Twitter" and the way they access Twitter, whereas there is no difference in the number of log on the "Twitter" per day. Table 5
- There is a small difference between public and private Twitter account holders on the number of log on the "Twitter" per day, total time spent on "Twitter" a day and the time been using "Twitter", whereas there is no difference in the way they access Twitter. Table 5
- There is a small difference between real name and nickname Twitter account holders and the time been using "Twitter", whereas there is no difference in the number of log on the "Twitter" per day, in time spent on "Twitter" a day and the way they access Twitter. Table 5.
- There is a small difference between Twitter account holders who read or did not read privacy policy in the way they access Twitter, whereas there is no difference in the number of log on the "Twitter" per day, in time spent on "Twitter" a day and the time been using "Twitter". Table 5.

Second: Twitter Privacy Concern (TPC):

In term of the privacy concern while been active on Twitter, T-Test analysis show the effect of the four factors; G, TAT, TUT and RTPP as follows:

- There is a moderate difference between male and female in privacy concern with regards to linking their Twitter and Facebook accounts and a small difference in privacy concern regarding disabling others to retweet or favourite their tweet, disabling the automated followers, and restrict timeline to messages that were mentioned whereas there is no difference in privacy concern while doing other activities on Twitter such as, following other people, accepting followers, reading , liking a tweet, retweeting ,writing a tweet, creating or posting on hashtags Table 5.
- There is a moderate difference between public and private Twitter account holders in privacy concern with regards to disabling others to retweet or liking their tweet, and disabling the automated followers, whereas there is no difference in privacy concern while doing other activities on Twitter such as, linking Twitter and Facebook accounts, following other people, accepting followers, reading , liking, retweeting, writing a tweet, creating or posting on hashtags and restricting timeline to messages that were mentioned Table 5.
- There is no difference between real name and nickname Twitter account holders in privacy concern while they are active on Twitter Table 5
- There is a small difference between Twitter account holders who read or did not read privacy policy in privacy concern and between people linking their Twitter and Facebook accounts, following other people, accepting followers, reading, linking, retweeting or writing a tweet, creating or posting on hashtags whereas there is no difference in privacy concern while doing other activities on Twitter such as, disabling others to retweet or favourite their tweet, disabling the automated followers, and restricting timeline to messages that were mentioned table Table 5

Third: Private Information (TPI):

In term of what is considered as Private Information, contingency analysis shows the effect of the four factors; G, TAT, TUT and RTPP as follows:

- There is no difference between male and female on what is considered as Private Information Table 6.

- Public Twitter account holders consider their home address, phone number and credit card number as a personal information more than those with private Twitter account Table 6.
- Real name Twitter account holders consider their photographic image as a personal information more than those with nickname Twitter account Table 6.
- There is no difference between Twitter account holders who read or did not read privacy policy in what is considered as Private Information Table 6.

Fourth: The Level of The Privacy Concern about their (TPCPI):

In term of the level of the privacy concern about their Private Information while been active in Twitter, contingency analysis shows the effect of the four factors; G, TAT, TUT and RTPP as follows:

- There is differences between male and female in the concern that the information they submit on Twitter could be misused, found by others, used by others, used in a way that I did not expected, used in a way that I am not comfortable with, used in a way that could threat their security, could be used in a way that could invade their privacy or could be used in a way that could create unexpected problems Table 6.
- There is no difference between public and private Twitter account holders the level of the privacy concern about their Private Information while been active in Twitter Table 6.
- There is a small difference between real name and nickname Twitter account holders the level of the privacy concern about their Private Information while been active in Twitter Table 6.
- There is a small difference between Twitter account holders who read or did not read privacy policy in the level of the privacy concern about their Private Information while been active in Twitter Table 6.

V. DISCUSSION

This research has studied the effect of four factors (users' profile) on the level of privacy concern whilst active on Twitter which are gender, type of Twitter account, type of username on Twitter and reading Twitter privacy policy ..

Gender appears to have a notable effect on the online self-presentation level and privacy perspective and therefor attitude toward the social media activities, that coming from offline privacy and security [37,38,39,40]. It has been found , in this research, that there are gender-based differences in some privacy concerns on Twitter related activities, in which translates to certain attitudes. For example, there is a moderate difference between male and female in privacy concern with regards to linking their Twitter and Facebook accounts, and a small difference in privacy concern with disabling others to retweet or favourite their tweet, disabling the automated followers, and restrict timeline to messages that were mentioned. There is also differences between male and female in the concern that the information they submit on Twitter could be misused, found by others, used by others, used in a way that they do not expect , used in a way that they are not comfortable with, used in a way that could threat their security, could be used in a way that could invade their privacy or could be used in a way that could create unexpected problems, although in these concerns both genders are concerned but females appears to be more concerned (Figure 1).

With regards on the effect of type of Twitter account , it has been found in this research, that in one hand, that there is a small to moderate effect of having a public Twitter account on considering home address, phone number and credit card number as a personal information, and on the other hand, there is a small to moderate effect of having a private Twitter account privacy concern while disabling others to retweet or favourite their tweet, and disabling the automated followers (figure 1). Such findings confirm that those who have a private Twitter account have no reason to worry about their personal information since it would not be

appeared on their account, however the privacy concern regarding retweeting or liking tweets would explain the reason behind the decision on having a private account[41,42].

Regarding the effect of the type of username on Twitter, it appeared that using a real name Twitter account is one of the factors on defining what is considered as personal information i.e. photographic image as well as the level of the privacy concern about these private information whilst being active on Twitter (figure 1) this result goes along with a finding of another research that pointed out the positive correlation relationship between anonymity and self-disclosure [43].

Finally, it has been found, in this research, that those who read Twitter privacy policy are more concerned about their privacy when linking their Twitter and Facebook accounts, in the following other people, in the accepting followers, reading, liking retweeting or writing a tweet, creating or posting on hashtags, and also in what is considered as private information, and in the level of the privacy concern about their private information whilst being active on Twitter (figure 1).

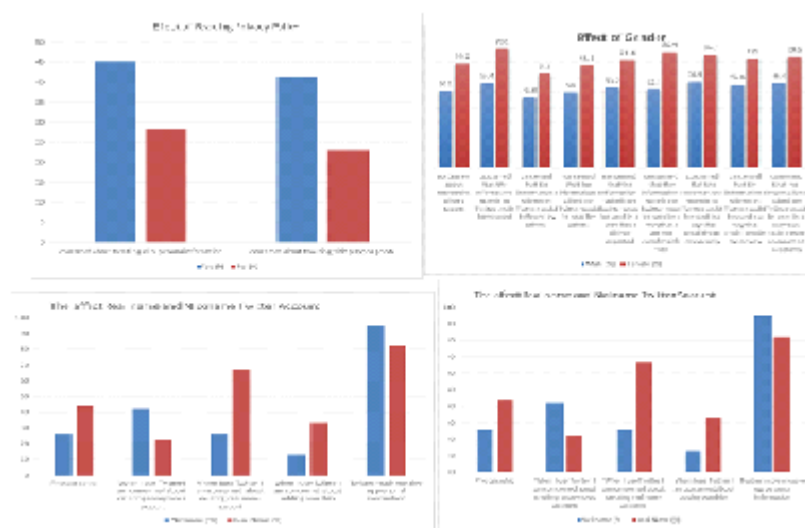


FIGURE 1: THE EFFECT OF TWITTER PROFILE

VI. CONCLUSION

This paper studied the relationship between the level of privacy concern of Twitter users and their gender, experience on Twitter, type of their Twitter account, type of their username and reading the Twitter privacy policy in which it called as Twitter profile. The study was conducted in the form of a questionnaire in Saudi Arabia, the collected data analyzed using T-test and ANOVA. The results show that Twitter profile has effects on both what is considered as personal information and the level of privacy concern while being active on Twitter..

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