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## Article

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## MANAGEMENT | RESEARCH ARTICLE

# Social media and consumer awareness toward manufactured food

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**Abstract:** Consumer awareness of the many important issues in daily life is one of the most important priorities, and this awareness liberates society from many of these problems, thereby making that society sophisticated and civilized. However, many societies, especially in developing countries, are experiencing problems in sensitizing consumers about many of the necessary everyday products, especially the manufactured food products that have become one of the basic ingredients of the meals on the table every day. Given the importance of the foregoing, the current study tried to investigate the important social issue, which is represented in the role that can be played by social media in consumer awareness toward manufactured food products in terms of health risks that can result due to the consumption of these products due to non-awareness of the dangers. To achieve this end, the quantitative method for data collection in the framework of the case study was chosen. This has been through the use of a questionnaire survey that has already been tested. The sample of the study was 351 respondents selected based on stratified sampling technique. The criteria for choosing the respondents to be part of the study were based on the full time employee of the organization. The results of the



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Jamal Ahmed works as a teacher in School of Administration and Economics/University of Sulaymaniyah, also as visitor lecturer at Komar University and Cihan University.

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Hama Kareem, J. A., Talib, N. A., & Akhtar, S. (2015). Employee Behavior and Implementing 5S and Total Productive Maintenance in Kurdish Cement Factories, Iraq. *Advanced Science Letters*, 21(5), 1333–1338.

Hama Kareem, J. A., & Talib, N. A. (2015). Role of Ethical Factors in 5S and TPM Implementation: Study of Kurdish Cement Industry, Iraq. *International Journal of Mechanical and Production Engineering (IJIMP)*, 3(5), 79–86.

### PUBLIC INTEREST STATEMENT

Manufactured food products with the difference of their ingredients and their names became one of the main ingredients on the food tables of many people. According to the information that has been obtained in the present study, it is shown that a lot of people who eat these manufactured food products unconsciously suffer from health problems such as obesity and heart disease, diabetes, and the other problems which science may detect in future. The main reason for these health problems is due to the usage of various chemical compounds in the manufacture of these foods such as materials and color enhanced flavor, preservatives, food textures improvers and others. In addition to a variety of fraudulent practices that companies follow in manufacturing these foods may vary in terms of taste and flavor to attract consumers. At the end, the consumers pay the price for it from their own health.

study revealed that the modern social media have a greater role than traditional social media in the consumer awareness toward manufactured food products. The study concludes with future directions for researchers interested in the area.

**Subjects:** Social Sciences; Behavioral Sciences; Economics, Finance, Business & Industry; Humanities

**Keywords:** social media; consumer awareness; manufactured food products

## 1. Introduction

Given the rapid growth in the human population, there is an urgent need to produce large quantities of food products to feed this large number of people. This has led to the widespread sale of manufactured food products, which have become one of the main ingredients on the food tables of many people (Bernstein, Mackintosh, Martin, & Crow, 2014). Diversity in the use of chemical compounds in the food products industry, such as colored materials, chemicals to improve flavor, preservatives and improve food strength are the cause of many of the health problems for the consumers. Some of these problems are currently known, such as obesity, diabetes, heart disease, and cancer tumors, and may be that science will reveal more of these health problems in the future (Collins, 2013).

These food products are manufactured with the approval the world's national health authorities. This is under food laws permitted and according to the specific conditions laid down by standardizing bodies (Vapnek & Spreij, 2005). Unfortunately, many food factories, especially in the developing countries, may not adhere to the specifications of the quality for its products and have mastered the means of defrauding these specifications (Petrini, 2003). In addition, there is the absence of effective health control systems in many countries in terms of food products manufactured and imported from other countries. In the end, the health of consumers is the price that must be paid (Wallack & Montgomery, 1992).

Social Media plays an important role in all countries and international societies. Whether these media are traditional, such as written press, television and radio or the modern, such as the news sites and the electronic media on the Internet like YouTube, or social networking sites like Facebook and Twitter, they are methods that influence the building and improvement of the awareness of the individual or society, which in turn contributes to the formation of the vision of the individual and society of the combined issues and the ability to analyze and understand them to take appropriate behavior on these issues (Rigoni, 2002). However, while the impact of social media may sometimes be very strong, and thus influence the deployment of behavioral patterns and cultural and social aspects pursued by the individual or the society, sometimes, the effect of these social media may have less impact (Sheedy, 2011). Thus, this means that social media have an influence on sensitizing the individual or the society and change their behavior and patterns of their lives toward many important issues, such as political, economic, and social (Fournier, 1998).

Based on the foregoing, this study is an attempt to understand the real role that could be played by the social media in terms of the consumer awareness of manufactured food products, particularly as to how to limit consumption of these products because of their danger to the health of consumers. Most studies have been conducted with a focus on the role of social media in educating the individual or society on issues of corruption, political, and economic issues. Very few studies have focused on social media and its role in improving consumer awareness of materials and industrial products, especially the manufactured food products that have become basic elements on the everyday dining table. Thus, this study is considered the first of its kind that is designed to investigate the role of social media in the consumer awareness toward the manufactured food products in the Middle East in general, and in Iraq in particular.

## 2. Literature review

In this age, increase in the world's population has increased the daily need for consumption of large quantities of food. This has resulted in the setting up of factories in countries around the world for

the manufacture of food products to meet the needs of the local population (Crawford, 1997). However, the unfortunate thing is that the production of these food products has become industrialized, and preserving them fresh for as long as possible requires the use of many chemicals that cause serious diseases to consumers (especially children) during their consumption (US Food & Drug Administration, 2013). Therefore, the governments of these countries should seek to raise the awareness to the consumers and educate them about these food products. This can be done by relying on various stakeholders like social media about the proper and healthy ways to consume these manufactured products to reduce the risk of injury to consumers by way of diseases like obesity, heart disease, diabetes, among others (Collins, 2013).

### **2.1. Concept of consumer awareness**

Awareness is an element that appears in the human automatic process. Automaticity can involve a conscious or unconscious course of action (Chartrand, 2005). In this case, the consumer awareness is the level of knowledge about manufactured food products (Ishak & Zabil, 2012). Consumer awareness is about making the consumer aware of his/her rights. It is a marketing term, which means that consumers are aware of products or services, its characteristics and the other marketing P's (place to buy, price, and promotion) (Karim, 2013). Though the first consumer movement began in England after the World War II, a modern declaration about the consumer's rights was first made in the United States of America in 1962, where four basic consumer rights (choice, information, safety, and to be heard) were recognized (Mandal, 2010). Ralph Nadar, a consumer activist, is considered as the father of "consumer movement". March 15 is now celebrated as the World Consumer Rights Day (Mierzewski, 2010). The United Nations in 1985 adopted certain guidelines to achieve the objectives of maintaining protection for consumers and to establish high level ethical conduct for those engaged in production and distribution of goods and services (Karim, 2013).

In the Middle East and Iraq generally and Kurdistan region of Iraq especially, the concept of consumer protection is not new. There are references to the protection of consumer interest against exploitation by trade, industry, underweight and measurement, high prices, duplicate articles and adulteration (Radhi, 2013). However, an organized and systematic movement to safeguard the interest of consumers is a recent phenomenon. The consumers have to be aware not only of the commercial aspects of the sale and purchase of goods, but also of the health and security aspects. Food safety has become an important element of consumer awareness these days (School of Arts, 2014). In the case of the manufactured food products, their quality depends not only on its nutritional value, but also on their safety for human consumption. Consumption of contaminated or adulterated food is a major cause of human illness and suffering (Roberts, 2001).

### **2.2. Social media in consumer awareness**

Social media began in 1978 with the creation of the bulletin board system (BBS) by Ward Christensen and Randy Suess to inform friends of meetings, announcements, and share information through postings. This was the beginning of virtual communities. These bulletin boards also introduced trolling and flame wars (Wise & Shorter, 2014). In 1979, "Usenet allowed users to communicate through a virtual newsletter" (Hendricks, 2013). Usenet was created by Duke University graduate students, Tom Truscott and Jim Ellis, and Steve Bellovin, a student at the University of North Carolina. The vision was to create software that would allow messaging between department members, along with connecting to other universities, which was limited to phone calls and postal newsletters at that time. Duke University and University of North Carolina became the first two hosts for Usenet. The software was compiled for formal distribution and had its name changed to "A News" by Steve Daniel. It was made available to interested systems administrators in 1980 at the Usenix Conference. Because the capabilities of "A News" were quickly outgrown by its network, "B News" was developed and released in 1981 (Wise & Shorter, 2014). It was with the services that came with America Online (AOL) that became the precursor to modern social networks with its member-created communities and viewable member profiles (Goble, 2012).

Thus, social media has become an integral part of everyday life. The world started to head profusely to study and to carefully analyze this new science and what it can provide to serve the information technology (Leung, Law, van Hoof, & Buhalis, 2013). Consequently, many books, articles and online sources that try to define social media have emerged, but each has a different perspective on it. For example, Kaplan and Haenlein (2010) offer a more technology savvy definition, stating that “Social Media is a group of Internet based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content”. “Web 2.0 refers to the principles and practice of facilitating information sharing and social interaction by users generating, altering and uploading web based content” (Liburd, 2012). Benea (2014) states that “social media is real life”. In addition, Levinson and Gibson (2010) define social media from a marketer point of view as “a set of tools that are free or nearly free and allow marketers and the community to create content and meaningful conversation online”.

Furthermore, Sterne (2010) explains social media in a clear and uncomplicated way as “That which allows anybody to communicate with everybody, consumer generated content distributed through easy to access online tools”. As well, Solis (2010) has his own way of defining the concept of social media, where he defines social media as being “many things to many people and represents much more than technology. It represents a societal renaissance that spawned a vibrant ecosystem supported by flourishing cultures and lifestyles”. In the current paper, the social media were divided into Traditional social media and Modern social media, which in turn can have an effective role in changing the pattern of the consumer’s life to many of the combined issues, the most important of them is the consumers awareness toward manufactured food products: this is in terms of brand, components of the manufactured products and the level of their consumption in way that do not leave the hazardous traces on the health of the people (especially children).

#### 2.2.1. *Traditional social media*

Traditional social media is the term used to encompass conventional forms of advertising media that include:

- **Written press**, whose roots date back to the seventeenth century, where the first weekly magazine appeared in 1622 entitled “A current of General News”. It is the first magazine published and distributed in England in that year (Age of Journalism, 2016). There is a prominent part of the written press dubbed the opinion press, in the sense that it creates a space for expression among the people, which is the subject of controversy and opposition to the institution on the objectivity and impartiality of events (Maras, 2013). Written press is defined as a utility that provides to public opinion more immediate events in a short and regular series (Cappella & Jamieson, 1997). It is also known as a social process for the dissemination of news and information to the public readers through print media like newspapers and magazines to achieve certain goals (Cohen, 2015).
- **TV**, linguistically, is composed of two sections, (Télé) which means remote and (Vision) which means vision from a distance (Gorton, 2009). In practice, the TV is a way to send and receive picture and sound from one place to another by electromagnetic waves and satellites (Gawlinski, 2003). TV has the potential to capture local channels and satellite channels through a network of local waves or satellites orbiting the Earth at known specific paths. This in turn channels broadcast the set of programs such as news bulletins, films, documentaries, which in turn have an effect on the behavior and actions of society toward a set of important issues for them (Bayo-Moriones, Etayo, & Sánchez-Tabernero, 2015; Sakr, 2001).
- **Radio** is composed of the effective means to deliver broad messages to the masses, who are able to translate the event with immediate effect: this is due to its simplicity (Lule, 2014). Radio is often used along with other media to connect societies to each other (Croteau & Hoynes, 2013). Radio can be referred to as method of expression: a good text can direct the awareness of the audience, and the conscious sense and the proper utilization of the possibilities of radio can provoke the listener’s imagination and make him experience the events of the radio



program (Lule, 2014). As well, the word audio through the radio influences the hearts of listeners, particularly when it can broadcast the media material more than once during the day. This is to ensure that various groups in society hear the broadcast at different times (Geniets, 2011).

### 2.2.2. Modern social media

Modern Social Media, known as Social networking as people know it today, first appeared in 1994 when Geocities was created. Users were able to create websites and sort them into “cities” based on their site content (Wise & Shorter, 2014). Globe.com followed a year later when they were publicly launched. Globe.com allowed users to interact with other users that had similar interests and hobbies and to publish their own content (Ahmad, 2011). AOL continued to lead the early years of modern social media with its AOL Messenger that allowed members to write biographies about themselves and share other details that they wished to. AOL Messenger also enable members to search for the profiles of other members (Wise & Shorter, 2014). Currently, the modern social networking most commonly used and which have a significant impact on the behavior of society and the changing patterns of their lives are Facebook, Twitter, and YouTube.

- **Facebook** was launched on 4 February 2004 by Mark Zuckerberg, along with fellow Harvard College students and roommates, Eduardo Saverin, Andrew McCollum, Dustin Moskovitz, and Chris Hughes (Phillips, 2007). Facebook is one of the most common social media in the world because of its wide use by many of the members of society (Bosch, 2009; Madge, Meek, Wellens, & Hooley, 2009). This is mainly due to its ability to provide multimedia information to members of society, such as photos, videos, and the latest updates and events (Dunay & Krueger, 2009; McCorkindale, 2010). Further, Facebook has the ability to sensitize members of society about the many products and services. This is done through enabling users access to details of these products and services directly from the companies and factories that produce them, which in turn offer these products and services by Facebook (Dunay & Krueger, 2009). Thus, Facebook can take dramatic advantage by sensitizing many individuals (consumers) toward many manufactured food products. This is in terms of the brand, the components involved in the manufacture of these products and how to use (consume) these products in a manner that does not cause a health risk to consumers (Kozinets, Belz, & McDonagh, 2012).
- **Twitter** was launched on 13 July 2006. Twitter is a microblogging service where users send updates (a.k.a. tweets) to a network of associates (a.k.a. followers) from a variety of devices. Tweets are text-based posts of up to 140 characters in length. The default setting for tweets is public, which permits people to follow others and read each other's tweets without giving mutual permission (Jansen, Zhang, Sobel, & Chowdury, 2009). Twitter application program interface (API) also allows the integration of Twitter with other Web services and applications. As the largest one microblogging services, Twitter's user base has grown, and it has attracted attention from corporations and others interested in customer behavior and service (Makice, 2009). Twitter is increasingly used by news organizations to receive updates during emergencies and natural disasters. Twitter's growth rate is substantial, with several million users as of 2008 (Jansen et al., 2009). A number of businesses and organizations are using Twitter or similar microblogging services to disseminate information on products offered by those companies and organizations, such as the brand and how to benefit from the use of these products in order to win more customers (Jose, Bhatia, & Krishna, 2010). Thus, Twitter can take advantage by improving the awareness of many consumers that are using this media network toward many of the products (especially the manufactured food products). This is in terms of the rational use of these products in a way that does not present a health risk to the consumer during consumption (Gibson, 2012; Martin, 2012; Rousseau, 2012).
- **YouTube** was launched in May 2005. YouTube allows billions of people to discover, watch, and share originally created videos (Arora & Kaur, 2015; Edosomwan, Prakasan, Kouame, Watson, & Seymour, 2011; Jarboe, 2011; Raikos & Waidyasekara, 2014; YouTube, 2005). YouTube provides a forum for people to connect, inform, and inspire others across the globe and acts as a distribution platform for original content creators and advertisers large and small (Edosomwan et al.,

2011). According to NBC, YouTube doubles as one of the largest video search engines in the world (BBC News, 2013). YouTube can quickly promote products and services for any company and organization through the speed of the information transition provided by YouTube for hundreds of millions of customers and potential consumers (Weber, 2009). Thus, YouTube, like the rest of social networking sites mentioned above, has the ability to sensitize many customers and potential consumers about the nature of many products from around the world (Onyanha, 2013; Sweeney & Craig, 2010). This is through the videos that are posted directly by the companies and factories, providing details of these products and how to use them. YouTube also allows for customer comments, which indicate to the public how to take advantage of these products in a way which does not result in a health hazard, especially for consumers (Andersen, 2007; Coleman & Ross, 2010; Marmbrandt & Dolge, 2012).

### 3. Study model and hypothesis development

The main objective of the study is to help better understand the true role that could be played by social media (traditional and modern) in the consumer awareness toward the manufactured food products. This is in terms of brand and ingredients (particularly chemical and organic ingredients) included in the manufacture of these food products, as well as in terms of the rate of consumption of these products by consumers in the way that does not cause a health risk on consumers (especially children). In light of the foregoing, the study model has been built along with the hypotheses of the present study: this is for verification of the goal of the current study.

#### 3.1. Study model

Figure 1 illustrates study model.

#### 3.2. Hypothesis development

Based on the study model and by depending on the literature review in the current study, the following hypotheses were drafted. This is for the purpose of the investigation of the role of social media (traditional and modern) in the consumer awareness of manufactured food products.

**Hypothesis 1:** Traditional social media (Written press, TV and Radio) have a strong role in the consumer awareness of manufactured food products.

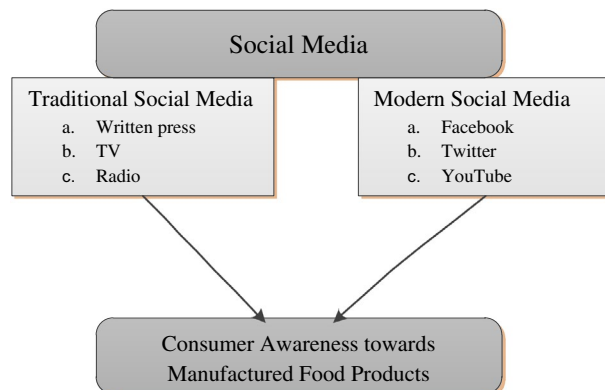
**Hypothesis 2:** Modern social media (Facebook, Twitter and YouTube) have a strong role in the consumer awareness of manufactured food products.

**Hypothesis 3:** Modern social media have a bigger role in the consumer awareness of manufactured food products than Traditional social media.

### 4. Methodology of study

The present study is descriptive in nature, aiming to explore the role of social media (traditional and modern) in the consumer awareness of manufactured food products. For the study, the relevant organizations of the subject of study were clarified, and Kurdistan region/Iraq was selected as the study area. Further, the sample of the study was selected on the basis of stratified sampling

Figure 1. Study model.



**Table 1. Stratified population and sample**

Strata	Population	Percentage of population (%)	Proportional sample
Faculty of Humanities/Sulaymaniyah University	221	6	21
NRT media	1,315	34	119
Rudaw media	1,141	29	102
Kurdsat media	1,102	28	98
Al-Ittihad newspaper	97	3	11
Total	3,876	100	351

following proportional sampling technique. Table 1 highlights stratified random sampling and corresponding sample based on random sampling technique.

Based on the sampling table provided by Krejcie and Morgan (1970), the sample size for a population of 3,875 is 351. Therefore, based on strata and proportional representation, condition of stratified sampling, the sample for each of the relevant organizations of the subject of study and the problem area was the Faculty of Humanities/Sulaymaniyah University (221): this faculty was selected because it is directly related to the subject of study and the area of problem because it contains the media department, NRT media (1,315), Rudaw media (1,141), Kurdsat media (1,102), and Al-Ittihad newspaper (97). It is worth mentioning that the number of the participants (Population) was taken from the human resources departments of the five organizations. This included participants of various grades.

Self-administered questionnaire was designed for the study. The questionnaire consisted of three sections. Section one was related to the traditional social media and modern social media. The traditional social media consisted of Written press, TV, and Radio. These three dimensions were measured using nine items (3 items for each dimension, respectively). The items were taken from the studies of Paquette (2013), Arora and Kaur (2015) and Karam and Saydam (2015). These items were measured on a 5-point Likert scale using level of agreement or disagreement. The modern social media consisted of Facebook, Twitter, and YouTube. These dimensions were measured using nine items (3 items for each dimension) taken from the studies of Sheedy (2011), Edosomwan et al. (2011), Paquette (2013), Wise and Shorter (2014), and Raikos and Waidyasekara (2014). All these items were rated on a 5-point Likert scale using level of agreement or disagreement.

The second section of the questionnaire consisted of items measuring the consumer awareness toward manufactured food products. This is in terms of brand and ingredients included in the manufacture of these food products and other items that can reflect the perceptions of participants in the survey regarding the consumer awareness of manufactured food products. These dimensions have been measured through nine items taken from the studies of Mainwaring (2011), Kuvykaite (2012), Edosomwan et al. (2011), Ishak and Zabil (2012), Nalewajek and Macik (2013), Onyancha (2013), and Lapointe, Ramaprasad, and Vedel (2014). These items were also rated on a 5-point Likert scale using level of agreement or disagreement. The third section of this survey comprised the demographic details of the respondents like gender, age, fieldwork experience, and education level.

The data collected was analyzed using factor analysis for validity and reliability. Once reliability and validity were ascertained, Pearson correlation was determined to find out the association of the variables of the study. For investigating the impact, regression analysis was done. Before applying regression analysis, assumptions pertaining to regression were satisfied. The reliability of the instrument was found to be 0.772 (traditional social media) and 0.852 (modern social media), and consumer awareness of manufactured food products was 0.788. Reliability using Cronbach's alpha indicated that the instrument was reliable as all the alpha values were found to be above 0.70. The factor analysis indicated that the instrument was valid as all the items were found to have more than 0.40 factor loadings and were retained.



**Table 2. Sample response from selected organizations**

Sr.	Factory	Distributed	Collected	Discarded	Actual sample collected	Response rate (%)
1	Faculty of Humanities/ Sulaymaniyah University	21	21	0	21	100
2	NRT media	119	93	12	81	68.1
3	Rudaw media	102	77	9	68	66.7
4	Kurdsat media	98	81	7	74	75.5
5	Al-Ittihad newspaper	11	11	1	10	90.9
Total		351	283	29	254	72.4

## 5. Results and discussion

This section highlights the findings of the questionnaire and the statistical techniques that were used to test the hypotheses. Earlier, the survey questionnaires were distributed to the sample of 351 respondents using proportional sampling method under stratified sampling technique. The questionnaires collected were 283, but 29 questionnaires were not properly filled, so they were discarded. The final sample that was taken into consideration for data analysis was 254, indicating a response rate of 72.4 percent. The response of each organization is provided in Table 2.

Thus, the below section looked at the sample distribution according to the profiles of respondents in terms of their demographic characteristics (gender, age, field work experience, education level) followed by discussion of both the Pearson correlation analysis for variables and the regression analysis.

### 5.1. Profile of respondents

This section provides a brief account of the respondents' profiles. Simple frequency counts were used to distribute the respondents according to the following demographic characteristics: gender, age, fieldwork experience, and education level. The profile of respondents is shown in Table 3.

As depicted in Table 3:

- Regarding the gender, the table indicates that the percentage of employees of males and females was 59.4% and 40.6%, respectively. This distribution is a realistic reflection for the reality of employees in most industrial and service sectors in the Kurdistan region of Iraq.
- As for Age, it can be observed that the participants aged less than 25 years, between 25 and 34 years, 35 and 45 years, and 45+ years amounted to (26.8%), (35%), (28.7%), and (9.5%), respectively. Thus, these percentages indicate that most of the individuals participating in the survey were young people who enjoy vitality and good response to the new techniques and social media.

**Table 3. Respondents background (N = 254)**

Gender		Age		Field work experience		Education level	
Items	N (%)	Items (years)	N (%)	Items (years)	N (%)	Items	N (%)
Male	151 (59.4)	Under 25	68 (26.8)	<5	78 (30.7)	High school graduate	24 (9.5)
Female	103 (40.6)	25–34	89 (35)	5–10	91 (35.8)	Diploma degree	48 (18.9)
		35–45	73 (28.7)	11–15	46 (18.1)	Bachelor degree	171 (67.3)
		Over 45	24 (9.5)	>15	39 (15.4)	Advanced degree	11 (4.3)

(iii) Field work experience indicates that the majority of the respondents were employed by their current organizations for more than 5 years but less than 10 years (35.8%), followed by less than 5 years (30.7%), between 11 and 15 years (18.1%), and more than 15 years experience (15.4%). These results indicate that most of the respondents have had lengthy work experience in the field of social media, and are thereby able to show their ability and disseminate all that is good and useful in programs and publications to make their societies safer and more civilized.

(iv) Education level, as shown in the table, indicates that most of the employees held a bachelor's degree (67.3%), diploma degree (18.9%), were high school graduates (9.5%), and advanced degree of the education level (4.3%). These findings point that most of the employees have a good level of education, in addition to what has been confirmed in paragraph (ii) above that most of them are young people. Hence, this means they have the ability to generate all that is good and new by way of ideas and meaningful programs that make their societies more civilized and problem-free.

## 5.2. Pearson correlation analysis for variables

Pearson Correlation was conducted to establish the association between the traditional and modern social media, and the consumer awareness of manufactured food products. Pearson correlation checks for significant association between variables (Sekaran, 2006). The results of correlation are shown in Table 4.

Pearson correlation results were found to be significant for all variables of the study. The results indicated that modern social media had a significant positive and strong relationship with consumer awareness ( $R = 0.548$ ,  $p < 0.01$ ). Similarly, the traditional social media were found to have a moderately strong and positive association with the consumer awareness ( $R = 0.496$ ,  $p < 0.01$ ). The traditional social media were found to have a strong positive association with the modern social media ( $R = 0.575$ ,  $p < 0.01$ ). Thus, the Pearson correlation results indicate that all the variables are associated with each other. Once association was established between variables, regression analysis using linear and multiple regression technique was conducted. The results are shown in the following tables.

**Table 4. Correlation matrix for variables of study**

	Traditional social media	Modern social media	Consumer awareness
Traditional social media	1		
Modern social media	0.575*	1	
Consumer awareness	0.496*	0.548*	1

\*Correlation is significant at the 0.01 level (2-tailed).

**Table 5. Linear regression model for traditional social media-consumer awareness**

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	F	Sig.	$\beta$	t	Sig.
	0.496	0.421	0.413	81.728	0.000			
Traditional social media						0.491	8.094	0.000

**Table 6. Multiple simultaneous regression analysis for dimensions of traditional social media-consumer awareness**

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	F	Sig.	$\beta$	t	Sig.
	0.547	0.434	0.416	45.137	0.000			
Written press						0.305	4.226	0.062
TV						0.462	7.118	0.000
Radio						0.418	5.923	0.011

### 5.3. Regression analysis

For the study, two types of regression analysis have been performed. Simple linear regression has checked the relationship and influence of one independent variable with the dependent variable, while in multiple regression analysis, two or more independent variables have been tested for their influence on the dependent variable.

#### 5.3.1. Regression analysis for traditional social media and consumer awareness

To check the influence of traditional social media on consumer awareness, simple linear regression was used. The multiple regression analysis has been performed for the dimensions of traditional social media with the dependent variable of consumer awareness. Tables 5 and 6 show the findings of the linear and the multiple regression analysis, respectively.

The linear regression results of the present study indicate that the traditional social media play an important role in the consumer awareness of manufactured food products. The results indicate that the traditional social media as an independent variable has a strong relationship ( $R = 0.496$ ) with the dependent variable of the consumer awareness. Likewise, the results indicate that the traditional social media has a significant influence ( $\beta = 0.491, p < 0.05$ ) on the consumer awareness. This result indicates that the traditional social media alone will have an influence of 49.1% on the consumer awareness of manufactured food products. This result is consistent with the findings of many researchers, such as Nestle et al. (1998) and Nalewajek and Macik (2013).

The multiple regression results of the current study indicate that the dimensions of traditional social media have a significant role in the consumer awareness of manufactured food products. For example, the result indicates that the TV ( $\beta = 0.462, p < 0.05$ ) and the Radio ( $\beta = 0.418, p < 0.05$ ) would have a significant influence. It means that the TV and radio programs not only lead in the development of consumer knowledge of manufactured food products, but also increases their awareness of these products, which have a positive impact (46.2%), (41.8%) on consumer awareness, respectively. Thus, this result is consistent with the findings of many researchers, such as Fotopoulos and Krystallis (2002), Dimara and Skuras (2005), and Vapnek and Spreij (2005) in terms of TV and radio programs being of great help in consumer awareness about many of the manufactured products, especially manufactured food products in terms of the brand and the components involved in the making of those products; thus, the food industry is subject to approval by the health authorities in the world's countries, and food products are made under food laws permitted according to the specific conditions placed by the standardizing bodies in world (Vapnek & Spreij, 2005). Moreover, the TV and radio programs have a significant role in educating consumers about the permitted quantity of manufactured food products that can be consumed in a way that does not lead to the occurrence of health risks, such as obesity, diabetes, heart disease, and cancer tumors on consumers (Collins, 2013).

However, the dimension of written press ( $\beta = 0.305, p > 0.05$ ) shows that the dimension is insignificant and does not influence the dependent variable of the consumer awareness. This was mainly due to what has been confirmed by many researchers, such as Cappella and Jamieson (1997), Maras (2013), Radhi (2013), Cohen (2015), Reianu (2015), and Shabiba (2016) that the majority of the written press in many developing countries, especially the Arabian Gulf countries, are interested in areas of policy and the economy and entertainment more than the social areas, which are represented with protecting and sensitizing the societies toward many of the issues relating to the health and psychological aspects. In addition, there is a low percentage of readers of the written press in those countries (Radhi, 2013).

Thus, the regression analysis for model of traditional social media-consumer awareness indicates that its results support the first hypothesis; therefore, this hypothesis has been accepted.

**Hypothesis 1:** Traditional social media (Written press, TV, and Radio) have a strong role in the consumer awareness of manufactured food products.

**Table 7. Linear regression model for modern social media-consumer awareness**

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	F	Sig.	$\beta$	t	Sig.
	0.548	0.459	0.426	87.046	0.000			
Modern social media						0.538	9.340	0.000

**Table 8. Multiple simultaneous regression analysis for dimensions of modern social media-consumer awareness**

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	F	Sig.	$\beta$	t	Sig.
	0.576	0.476	0.467	49.932	0.000			
Facebook						0.516	9.221	0.000
Twitter						0.381	5.312	0.021
YouTube						0.472	7.340	0.004

### 5.3.2. Regression analysis for modern social media and consumer awareness

To check the influence of modern social media on consumer awareness, simple linear regression was used. The multiple regression analysis has been performed for the dimensions of modern social media with the dependent variable of consumer awareness. Tables 7 and 8 display the results of linear and multiple regression analysis, respectively.

The linear regression findings of the current study indicate that the modern social media play an important role in the consumer awareness of manufactured food products. The findings point that the modern social media as an independent variable has a strong relationship ( $R = 0.548$ ) with the dependent variable of the consumer awareness. As well, the findings point that the modern social media has a significant influence ( $\beta = 0.538$ ,  $p < 0.05$ ) on consumer awareness. This result indicates that the traditional social media alone will have an influence of 53.8% on the consumer awareness of manufactured food products. This result is consistent with the findings of Jahn and Kunz (2012), Scuderi and Sturiale (2014), and Schivinski and Dabrowski (2016).

The multiple regression results of the present study indicate that the dimensions of modern social media also have a significant role in the consumer awareness of manufactured food products. The findings related to these dimensions indicate that Facebook ( $\beta = 0.516$ ,  $p < 0.05$ ) and YouTube ( $\beta = 0.472$ ,  $p < 0.05$ ) are having considerable influence on consumer awareness. As well, Twitter ( $\beta = 0.381$ ,  $p < 0.05$ ) is found to have moderate impact on the consumer awareness of manufactured food products. It means that these modern social media (Facebook, YouTube, and Twitter) would have a positive impact of 51.6, 47.2, and 38.1% on consumer awareness, respectively. This means that these modern media greatly assist in sensitizing a large proportion of society (consumers) about many of the products and services offered in the world. This was mainly due to what has been confirmed by many researchers, such as Mahmood (2013) and Hansen, Shneiderman, and Smith (2010) to a high percentage of users to these social networks all over the world. In addition, these social means of publication and distribution of information have a large speed advantage related to the many products and services in the world.

These social media also allow for the possibility of sharing information among all users with the direct interaction potential, which is free (Mahmood, 2013). This in turn helps to a great extent in the transfer of information and the important opinions directly about any manufactured products, especially the manufactured food products; thereby, this helps significantly to educate many people about these manufactured products in terms of how to use them, as well as in terms of how to avoid risk (particularly the health risks), which can be caused by these products during use (or consumption) (Collins, 2013; Nalewajek & Macik, 2013).

It can be observed that the results of this study indicate that Facebook was the best influence on the consumer awareness not only among the modern media, but also among traditional media. This is mainly due to the large number of users of this site compared to the rest of the sites and social media. In addition, Facebook has significant ability in delivering information and publications about a wide set of products for the larger number of people around the world (Kozinets et al., 2012; Madge et al., 2009). Facebook also helps to communicate on a daily basis whether by writing, asking the public and the work of the survey of opinions about the quality of products and their preferences (Mahmood, 2013). Facebook also makes it possible to view special images and videos of the products and how to use them in ways that do not lead to the occurrence of any of the risks (especially the health risks) on the users (Dunay & Krueger, 2009; McCorkindale, 2010). Thus, all the points referred to above enable Facebook to have a greater role in the consumer awareness of manufactured food products in the current study.

Based on the foregoing, it can be noted that the regression analysis for model of modern social media-consumer awareness indicate that its results support the second hypothesis; therefore, this hypothesis has been accepted.

**Hypothesis 2:** Modern social media (Facebook, Twitter and YouTube) have a strong role in the consumer awareness of manufactured food products.

#### 5.3.3. Regression analysis for traditional social media and modern social media with consumer awareness

The multiple regression analysis has also been performed for the two main variables of study: traditional and modern social media with the consumer awareness. This regression was performed to ascertain which variable is most influential in the consumer awareness of manufactured food products in the five organizations under study and to test the hypothesis. The findings of this regression are shown in Table 9.

The multiple regression results of the present study indicate that the modern social media have a greater role ( $\beta = 0.476$ ,  $p < 0.05$ ) in the consumer awareness of manufactured food products, compared to the role of traditional social media ( $\beta = 0.432$ ,  $p < 0.05$ ) in the current study. It means that the modern social media would have a greater positive influence of 47.6% on consumer awareness compared to the impact of traditional social media, which reached 43.2%. The reason behind this result is because modern social media currently receive greater attention and use by a larger number of people in the world compared with the traditional social media. This, in turn, leads to the impact of a large percentage of these people with the information that is disseminated via these modern social means (Hansen et al., 2010). Moreover, the modern social media features the ability to write and leave comments by the users directly about many of the materials and products that are displayed through these social means (Marmbrandt & Dolge, 2012). This, in turn, helps to exchange views and suggestions among users about these materials and products and how to benefit from them or reject the acquisition of them in case they pose risks (especially health risks) on people (Andersen, 2007; Coleman & Ross, 2010). Thus, each of the above has enabled the modern social media be have the greatest and most effective role in educating consumers and users to many materials and products all over the world compared with the traditional social media.

**Table 9. Multiple simultaneous regression analysis for traditional and modern social media-consumer awareness**

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	F	Sig.	$\beta$	t	Sig.
	0.589	0.482	0.456	53.291	0.000			
Traditional social media						0.432	7.623	0.000
Modern social media						0.476	8.011	0.000

Thus, the regression analysis for model of traditional and modern social media - consumer awareness indicates that its results support the third hypothesis; hence, this hypothesis has been accepted.

**Hypothesis 3:** Modern social media have a bigger role in the consumer awareness towards the manufactured food products than Traditional social media.

## 6. Conclusion

Developing awareness in society toward many areas such as education, tourism and economy is largely done by the social media. However, most societies, especially in developing countries, face many social problems and the most important of them is protecting the consumers from health risks resulting from the misuse (bad consumption) of manufactured food products, which imposed themselves and have become the ingredients of basic daily meals on the dining table. This is mainly due to the lack of attention by the governments of those countries to sensitize consumers toward the proper consumption of such food products. Therefore, the governments seek to make their societies free of such these problems, and make them more aware and civilized. They should give more attention to providing the necessary motivation and support for most relevant organizations, especially the social media and the users of these social media in their countries. This is by making these media and their users have a major role in sensitizing the consumers. This is in terms of establishing the programs and dissemination of information and publications aiming at sensitizing these consumers (especially children) in their societies toward the issue of manufactured food products, which lead to the occurrence of health risks and diseases such as obesity, diabetes, heart disease, and cancer tumors, and science may reveal more of them in the future. This is as a result of non-conscious and excessive consumption of these food products.

The study is not without limitations. The foremost is the sample size. Only five organizations were selected and respondents to the survey belonged to these five selected organizations. Increasing sample size and the number of organizations may affect the results of the study. Furthermore, doing a comparative study of countries which own the social media that have a significant role and are effective in sensitizing their societies toward many important issues makes them more aware and civilized, with other countries the opposite of that. This surely reveals that the findings can provide more ideas about the real role of social media as expressed in the difference of the level of cultural awareness among the societies in those countries. In addition, there are many issues, such as the political, financial, technological that limit the role of social media in sensitizing societies, especially in the developing countries. Hence, these issues need to be addressed by researchers in the future to investigate their impact on social media, and getting useful insights about any of these issues during the analysis will have a greater impact on social media toward sensitizing societies and making them more civilized.

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