

Role of Digital Media (E-Papers & Websites) Regarding Food Risk Communication: Comparative Analysis of Pakistan and America

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ABSTRACT

This study intends to pour a light upon United Nation's global agenda of sustainable development goal "Food waste" under the umbrella of risk communication. The main impetus of conducting this research was to evaluate American and Pakistan's digital media (e-papers & organizational websites) content over food loss. Underlying study will contain quantitative method "survey method" & "content analysis" to explore digital media (organizational websites & e-papers) content regarding food waste using "Social responsibility theory" & "Neo Institutionalism Theory". According to gathered data researchers concluded that Pakistan's digital media (e-paper & social media) are not really creating awareness about it but American media does slightly better, but social media and organizational websites are main protagonists in this regard. Therefore, this is proved there is a need of some modifications in "new institutionalism theory" as organizational sites should have to be introduced properly to folk for cognitive type influence especially Pakistani websites are lagging behind in this race as compare to American websites. Whereas media is not acting properly as per social responsibility theory. Planet earth is perilously affected by food waste issue in divergent modus operandi. Underlying study provide framework to media practitioners for assessment and management of food risk around the world and would give academic contribution by exploring risk communication and it is directly applied to food safety declared by United Nations'.

Keywords: Food, Risk, Communication, Food waste, Digital media, Website, E-papers, Hunger.

Introduction

This study intends to explore media's coverage and its impact on public regarding Food risk communication in Pakistan and USA as food is considered to be a basic need of human beings. Researcher has observed that in the past few decades the ratio of food waste is becoming highly dangerous which is ultimately causing alarming situation for whole planet earth for instance: hunger, climate change etc. It is mandatory to aware people about food risk now before it's too late. World Health Organization (2016) stated that "Risk

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Communication refers to the exchange of real-time information, advice and opinions between experts and people facing threats to their healths, economic, or social well-being. This research aims to evaluate America and Pakistan's e-paper's coverage, national & international organizational website's content, Digital media's nature of risk communication strategies and their impacts over public by exploring which country's Digital media is playing active role about food risk communication as sustainable development goal. Food and agriculture organization of the united nations Stated in book "Risk communication applied to food safety"(2016) that Risk communication directly related to food waste issues or food safety issues by world health organization mainly because it has applied in many countries. "Framework consist of three components; risk assessment, risk management, risk communication.

They have shed a light upon the global agenda of "united nations" which is basically orbiting around the reduction of food wastage, sooner. "World Resource Institute" estimated that halving the ratio of food waste by 2050 would close more than twenty percent gap between food available today and what is required in 2050. By 2050 world will need sixty percent more calories every day to feed at least nine billion people. Only in United States of America the target reduction of food waste is fifty percent by 2030. European Union has the same target to achieve by 2050 and before 2030 alarming hunger would score high in Pakistan, India, Yemen, Haiti & Afghanistan.

Researcher found it more alarming in this era than that of previous one. Whereas forty percent population of the whole world is going to bed hungry daily as per the report of Food and Agriculture Organization of the United Nations." Four hundred and four billion tons of greenhouse gases are created during the production of food which we never eat and dispose of into the waste bins, regretfully. One third of world's overall agricultural land (1.4 billion hectares) is used to grow food and because of this million gallon oil wasted in production of the food, seventy percent fresh water and natural ground resources are also wasted and eventually we waste it unnecessarily in the name of 'food wastage. Every year nine hundred and forty billion dollars lost occurs and due to this practice. Undoubtedly is a big drastic economic loss as well. Moreover Worth of one hundred and sixty billion roughly fifty percent production of food in United States of America is thrown away almost sixty million tons. Moreover "Food and Agriculture Organization" (2016) estimated that one third food produced in world gets lost or wasted without human consumption and its worth is approximately 1.3 billion tones. Hence if we compare country wise, we can distinguish between industrialized and developing countries. In industrialized countries six hundred and eighty US dollar whereas in developing countries three hundred and ten US dollar is roughly quoted figure of food wastage. For total human consumption of food production, per capita income is nine hundred kilo gram a year in rich countries. In developing countries forty percent of losses occur at post-harvest level. In Latin America currently food getting waste could feed three hundred million individuals.

The striking point is if only one third portion of whole food waste globally could be secured that would be amazingly enough to feed at least eight hundred and seventy million hungry people in the world. "Moreover, now researcher is going to highlight Pakistan's condition, here this nation is producing enough food to meet the desire of entire population but only due to food wastage issue six out of ten individuals still go to bed hungry. Consequently, Global Hunger index ranked Pakistan at one hundred and seventh level out of one hundred and eighteen developing countries. And as per reports of United Nations forty percent of food gets wasted in Pakistan every year where twenty two percent of its population is still running undernourished and facing serious hunger. Scaling hunger problem Pakistan ranked 33.4%. Moreover, when we talk about poverty then thirty percent Pakistani's still lives below poverty line. In Pakistan 29 pc hunger fallen since 2000, in addition world leaders are agreed for deadline to reduction of global hunger by 2030 as sustainable development goal. Thus, behavioral change and socio-cultural sensitization's elements contains food wastage issue.

According to United States Resolution (1946) "Freedom of information is a fundamental human right. It is considered as Mass communication is the main protagonist in this regard. There are variety of channels through which communication takes place. Digital media is one of the famous outlets and very common these days as it comprises of internet and mobile phones mass

communication in it. It has emerged new form of newspaper, magazines and to networks as well which is presented over website or blogs. Digital media has its own sanctity and during this century it is mandatory to work over this it comprises as it covers the whole world in it.

Moreover Keeping in view researcher has conducted this study to explore digital media in creating awareness about food insecurity and food loss around the globe and to explore more about its coverages; how digital media is informing public about the food risk or consequences caused by food wastage are affecting planet and how people are putting themselves at risk due to the threat of food waste related hazards how they are implementing precautionary measures and solutions informed by media about environment, economical, societal, health or biodiversity issues caused by only “food waste”.

Literature Review

Fischer *et al.* (2017). “Characterization of food waste as feedstock for anaerobic digestion” talked about scientific impacts related to methane yield and high biodegradability. This is research over food wasters and profiling consumer’s attitudes behaviors to waste food in Italy by using survey method over 3087 respondents. Declared that wages, and demographics, household culture, attitudes, values influence food waste behaviors. Profiling waste types can help to design interventions stimulating behavioral change. Risk analysis: Risk Communication” this article was totally based upon risk communication and its framework with regard of consumer’s perception. Communication strategies, risk assessment, consumer behaviors, public health, technological assistance, dietary choices, targeting information, addition to technical risk communication Fischer *et al.* (2017). While “Drivers of Food Wastage and their Implications for Sustainable Policy Development” highlighted resource conservation, economic costs, food securities, economic and environmental impacts and transitions to more sustainability with regard of policies and critical effective policy development (Thyberg & Tonjes, 2016). There is need to raise awareness on qualities of possible food security measurements tools for practical applications and everything should be analyzed agenda (Melgar *et al.*, 2015). Use of social media regarding risk communication, interaction and awareness “results show that both stakeholders and experts confirm a future role of social media in food risk and strengths as speed, accessibility and interaction make social media an interesting tool in crisis communication or issue awareness raising.” Risk communication strategic impact by Facebook in the context of food safety issues by adopting a web survey. Risk perception, emotion, social trust and support are the key determinants of Facebook. Food waste with a complete three factors-based framework, (knowledge, location, food literacy). According to gathered data consumers behavior influence in better way to attitudinal factors to work in future over consumer’s mitigation (Wharton *et al.*, 2014). This study sheds a light upon factors of food security in Pakistan through significant indicators for instance food gap, the gap in Pakistan is thirty percent whereas thirty five percent available food is not accessed due to different hurdles (Hussain & Kumar, 2012). This article reviewing global scale food loss and risk plus hunger reduction is possible with implementations on technological innovations (Premanandh, 2011).

Risk communication’s framework by took food industry’s case study (food colors) food was modified to exemplify risk communication and lesson can be learned. According to them food security has become challenge now. There are so many technological ways which are reducing aquaculture’s problems and negative impacts on biodiversity. Major objectives of the studies are also very clear. They wanted to identify all the practices of food waste and then as per their recommendation there should be economical incentives and some changes in policies (Trautman *et al.*, 2010) In another study Parfitt *et al.* (2010) indicates that there is a dire need of change in 2050 because there are drastically kind of losses in developing and industrialized countries in third world at post-harvest level.

Turkon *et al.*, (2009) Many studies intended to contribute and strive to identify some community-based strategies & actions which could amend the impact of food risk in third world countries. Global climate has vast impact due to decomposition of wasted food. The underlying study by giving it a strong reference about America’s increasing food waste issue and its consequence. There are institutional challenges to

recovering phosphorous and reducing demand this opportunity could be addressed together as phosphorous demand is more likely to get increase and peak production could be expected at 2030. They have calculated general environmental impact and identified carbon calculators accounted as food consumption.

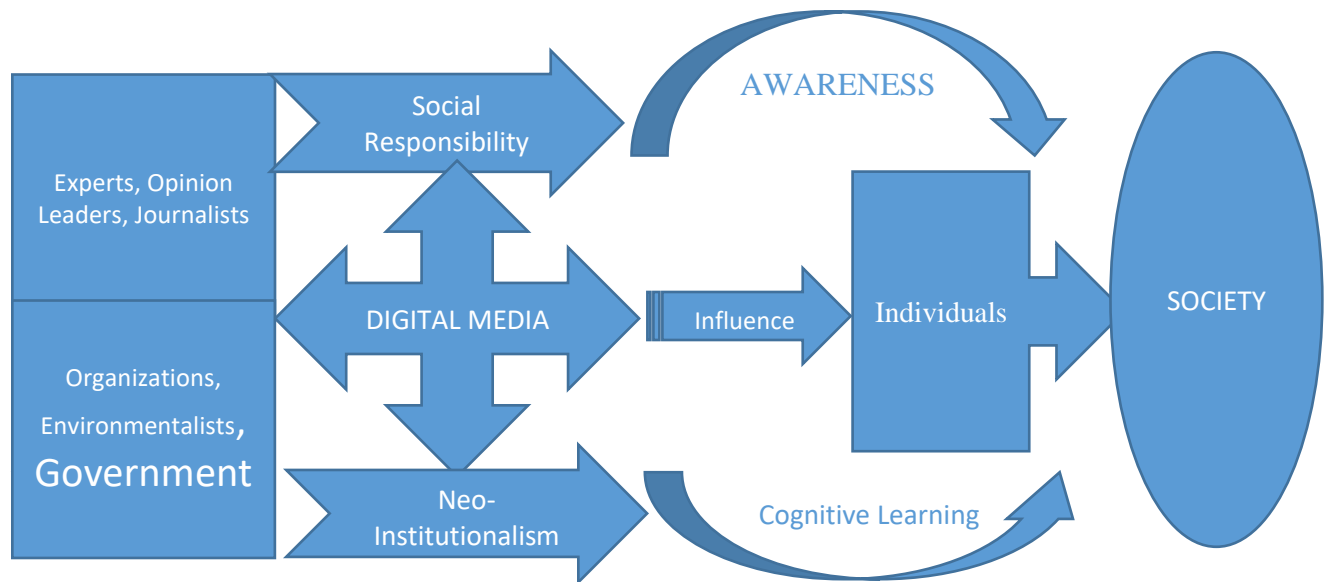
Houghton *et al.* (2008) in “*journal of consumer policy studies*” researcher had conducted research over empirical analysis and implications for the effective food risk communication” The main purpose of this study is to re-evaluate current theories on food risk communication to distinguish the level of consumer’s understanding on food risk issues Lee, K. (2008). In another study practices & implementation distinguish the commonalities and differences of perceptions of consumers and their research concluded that experts were highly negative about motives whereas general public were more in different about media influence.

Ferreira, McComs, (2007) investigation also related to that health and risk communication literature recommended that mass media channels are the major influencers on social level risk judgment. But as per findings personal level risk is more to be influenced, to some extent by mass media channels. Risk communication itself is a media event and seen as part of food information environment rather than autonomous to it. Domestic environment regarding improvement of food safety and discussed the need for transdisciplinary approach in terms of delivering additional betterments in public health’s. And suggested some ways by developing knowledge through research in natural and social sciences and presented a framework to integrate both approaches to influence in more effective way to consumers (Fischer *et al.*, 2005). Pidgeon & Poortinga (2003) describes the relation of government and general public to nit of trust” through different risk contexts. It seems government and its policies are quite similar as five risk cases (took by researcher), perceived by public. Analysis showed that trust could be explained by two dimensions “general trust dimension” contains care, fairness, competency, and skepticism and openness. Researchers found same solutions for five risks. Food safety issues under the umbrella of risk communication and its perception. There is complexed information prevailed all around regarding nutrition’s it is mandatory communicate effectively to consumers about food risk. Papers discussed many psychological elements that influence public’s perception and how individuals belong to different corner of world responds to such information about risk (Frewer, 2001).

After reviewing extensive literature researcher has observed that extensive work has been done in the world over risk communication and food waste by highlighting consumer behaviors and scientific consequences as well as economic and environmental issues. The present study comes up with a research gap by finding insufficient information on the selected topic’s major element: which is digital media. And as well as risk communication with reference to Pakistan. In Pakistan this will be a relatively new topic and the contribution of this study would highlight specifically “communication’s sanctity” regarding food risk & is giving framework to media practitioners for communication about this societal hazard and is intimating environmentalists regarding food risk’s assessment and management. This study is taking organizational communication’s perceptive as well by criticizing or organizational websites, which hasn’t been explored yet.

Conceptual Implication of Theories

In order to strengthen the skeleton of this study researcher has selected “Social Responsibility Theory “& “Neo-Institutionalism Theory. The following conceptual model is a representation of underlying study’s theoretical framework, made of the compositions of concepts how theories are applicable to present study and will be helpful to know, understand or stimulate a subject the model represents.



This study demands from digital media (e-papers & organizational websites) to address the issue of food waste under the umbrella of risk communication. Here Social responsibility theory says that through media. Public experts can give high performance, but it might be intervened by government in some certain circumstances to protect public interest. The present study takes over this point, as public’s opinion leaders or media professionals either journalist should be liable to public and should have to educate them vividly. If they are not doing this then Environmentalist should play role by stepping up and it could be joint effort of government or any other organizations with the help of media to aware people.

In the light of neo institutional theory people can be influenced through providing them any benefit or regulating them or imposing them. Neo institutionalism highlighted “cognitive” type of influence people should adopt things by their own choice if they feel convinced or willing and to convince them for certain decision or action is a technicality of institutions for instance government. This study is suggesting by keeping an eye over neo institutionalism theory’s elements: that organizations work in an open environment which is called institutional environment and every institution is inspired by different environment to gain authority or legitimacy and survive so they should have to work autonomously by creating awareness through proper channels having persistency and consistency to bring the development of society to fluorescent height of success.

Methodology

Research Method

This research is twofold having combination of “Mixed Methodology” under the umbrella of quantitative as well as qualitative research method. In first phase, study employed “Content- Analysis” method to collect data from e-papers & organizational websites regarding food risk communication. In second phase, study have applied “Survey Method” to check the impact of that risk communication upon general public about “Food waste issue”.

Universe of the study for content analysis

Universe of this study is digital media (organizational websites & e-papers). Researcher has chosen 2.5 years (2016 to 2018 April)’s time period for analyzing e-papers & 6 month (November 2017 to April 2018) selected for websites.

Sampling Technique

Researcher has selected non-probability sampling by applying “convenient sampling” for conducting this research Study.

Sample of Content

Pakistan’s e-paper: dawn news and America’s e-paper: New York Times

America’s websites: The Consumer Good Forum, Food and agriculture organization of the United Nations, UN Environment.

Pakistan’s websites: PUNJAB food department, Pakistan Standards & Quality Control Authority, Urban Unit.

Unit of Analysis

Units of analysis of this study are articles, editorials & news stories of the e-papers, dawn and New York Times, plus selected organizational website’s articles about food risk or food waste.

Second Phase

Second phase of the study is survey technique under the umbrella of quantitative method. As per research design this study has applied online analytical survey questionnaire as tool.

Population of Survey

The population for the selected study was the Social media users of Pakistan and America

Sampling Method of Survey

Underlying study has selected “Non probability” sampling with “convenience sample”.

Sample of Survey

Underlying study has selected 100 American respondents and 100 Pakistanis respondents.

Hypotheses

H1: There is a lack of food risk’s communication in Pakistan’s digital media (e-papers & organizational websites) as compare to America.

H2: The digital media (e-papers & organizational websites) is creating less awareness regarding food waste issue in Pakistan and America.

Dependent Variables

This study has identified “Food Risk communication” as dependent variable.

Independent Variables

This study has selected “Digital media (e-papers & organizational websites)” as independent variable.

Application of Statistical Test

The following statistics were used to analyze the data.

Chi-Square Analysis

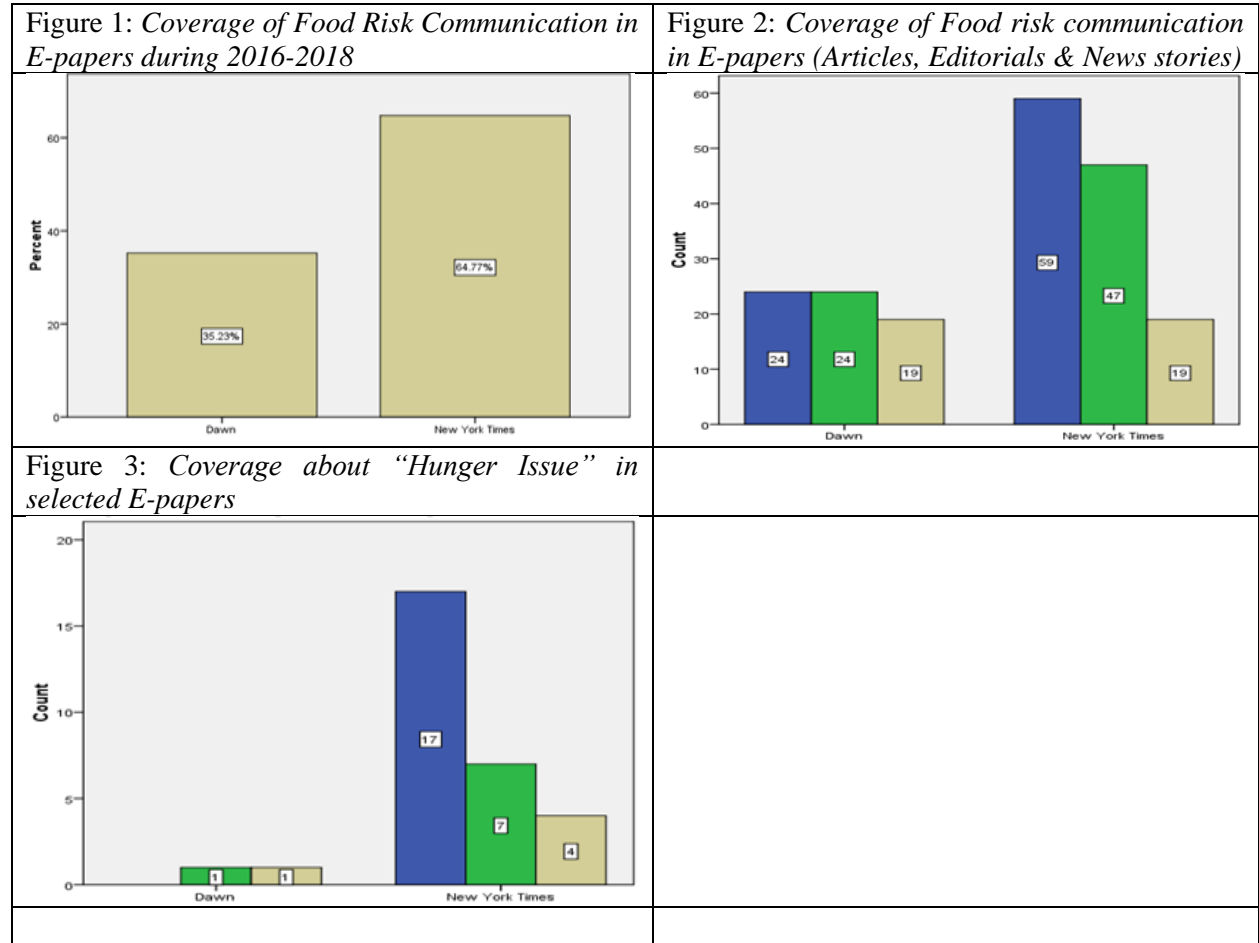
This test has used for categorical data of content analysis the C2 test is used to determine whether an association or relationship between selected two variables in a sample is likely to reflect a real association between these two variables (digital media coverage and awareness among public) in the population.

Correlation Bivariate Analysis

This test has applied to underlying study to see the effect that both variables are linked or occur together or not, one independent and another dependent variables which are: digital media's exposure & its impact on general public.

Findings and Interpretation

Part One – Content Analysis (*The Dawn and The New York Times*)



PART II-CONTENT ANALYSIS (ORGANIZATIONAL WEBSITE)

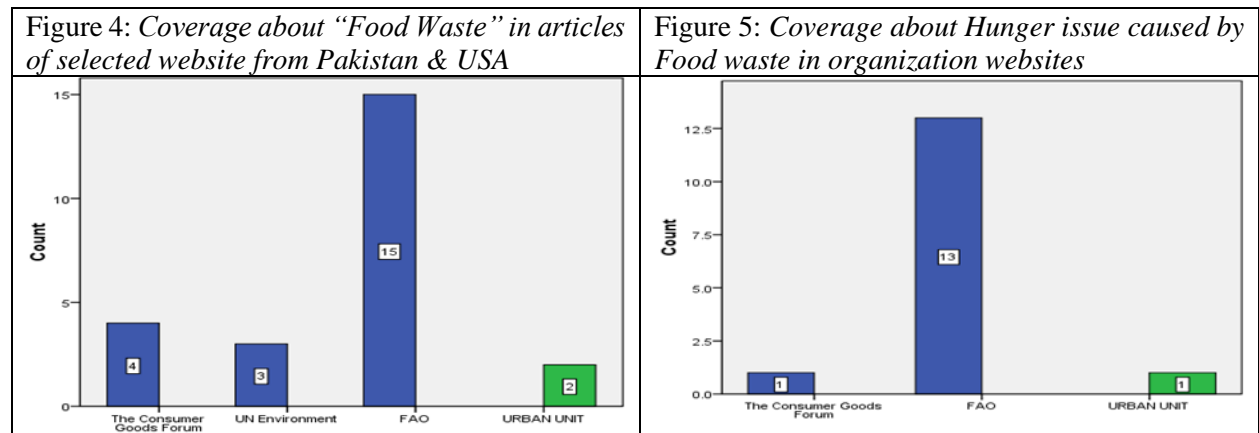


Figure 6: Coverage about “Food management Policies” in selected websites

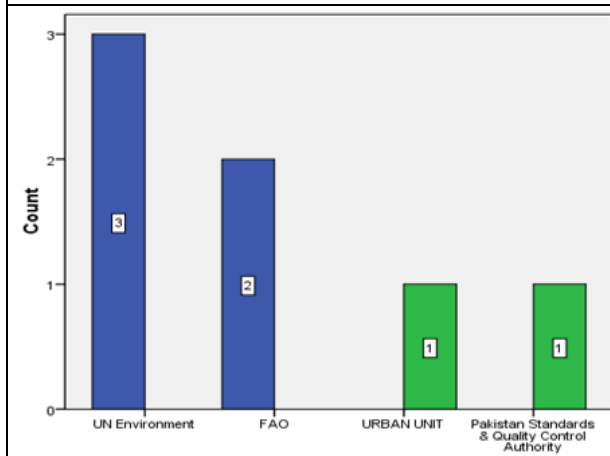
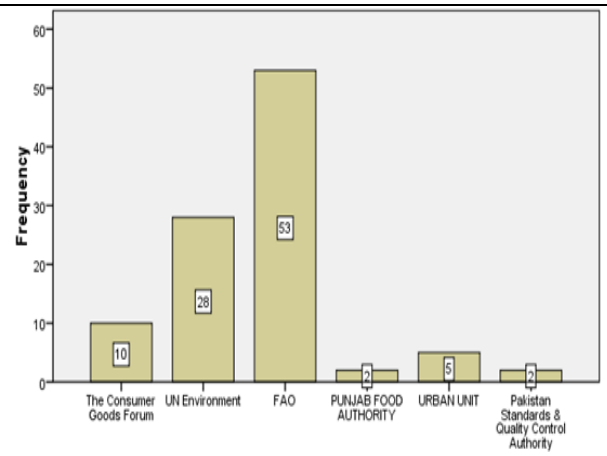


Figure 7: Overall coverage of “Food risk communication” in selected websites of Pakistan & USA



Content analysis – Part III (Findings of Survey Questionnaire)

Figure 8: Overall awareness about Food waste issue from selected sample of Pakistan & USA

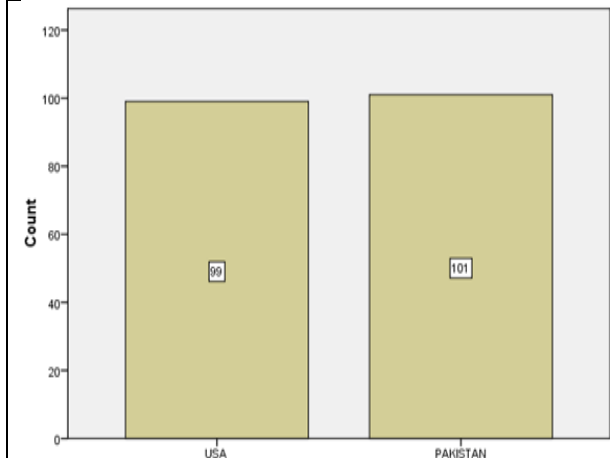


Figure 9: Awareness about problems caused by food wastage

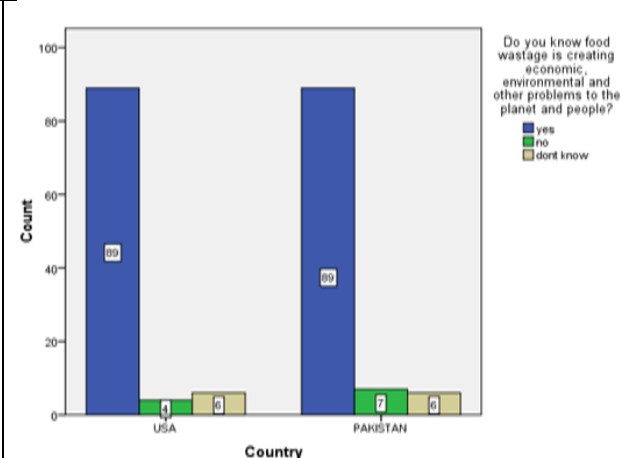


Figure 10: Media playing its role in creating awareness among masses

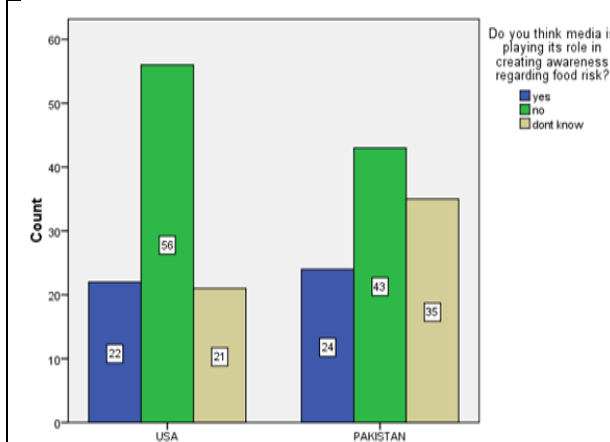


Figure 11: Digital Media coverage about food waste issue

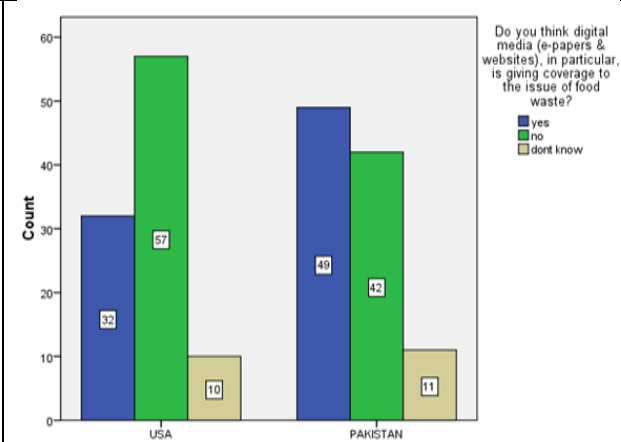


Figure 12: E-papers are creating awareness regarding food waste

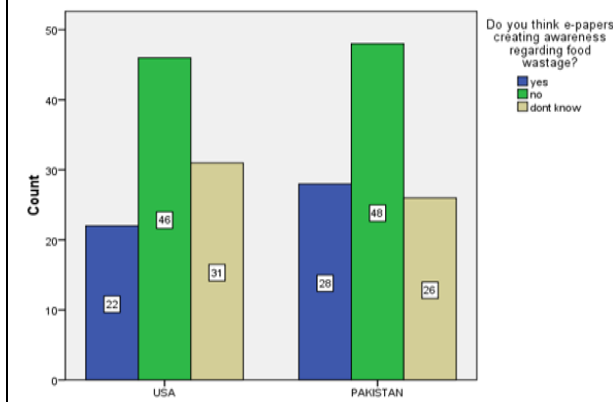


Figure 13: Awareness through organizational websites about food waste

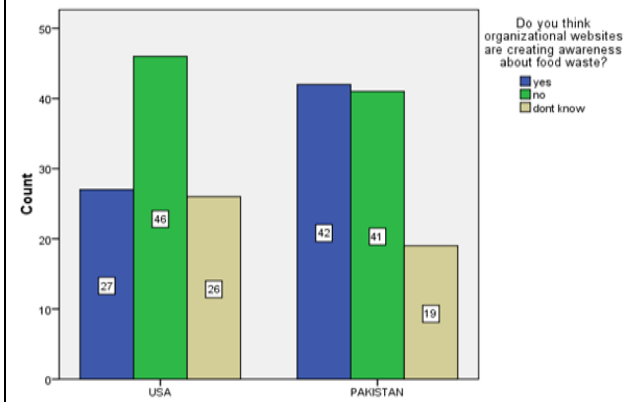
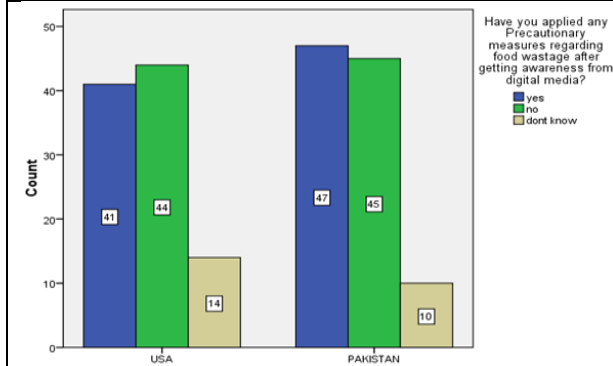


Figure 14: Impact of media awareness on public



Hypothesis Test

Chi-Square Analysis- Association between Pakistan & America’s Digital media

As per underlying study’s result hypothesis one is accepted through Application of chi-square test by putting two categorical variables to check associations between e-papers & websites of America and Pakistan. Hence it is proved that, there is no significant association between Pakistan’s digital media (e-papers & organizational websites) and America’s digital media (e-papers & organizational websites)

Table 1: Chi-Square Results

| Newspaper | | Value | df | Asymp. Sig. (2-sided) |
|----------------|------------------------------|--------------------|----|-----------------------|
| Dawn | Pearson Chi-Square | 7.503 ^a | 4 | .112 |
| | Likelihood Ratio | 7.915 | 4 | .095 |
| | Linear-by-Linear Association | 6.706 | 1 | .010 |
| | N of Valid Cases | 67 | | |
| New York Times | Pearson Chi-Square | 6.199 ^b | 4 | .185 |
| | Likelihood Ratio | 7.720 | 4 | .102 |
| | Linear-by-Linear Association | 3.485 | 1 | .062 |
| | N of Valid Cases | 125 | | |

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 2.84.

b. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .61.

Table 2: *Chi-Square Results*

| Country | | Value | df | Asymp. Sig. (2-sided) |
|----------|------------------------------|--------------------|----|-----------------------|
| USA | Pearson Chi-Square | 6.197 ^a | 4 | .185 |
| | Likelihood Ratio | 6.841 | 4 | .145 |
| | Linear-by-Linear Association | .083 | 1 | .774 |
| | N of Valid Cases | 91 | | |
| Pakistan | Pearson Chi-Square | 3.690 ^b | 4 | .450 |
| | Likelihood Ratio | 4.589 | 4 | .332 |
| | Linear-by-Linear Association | .500 | 1 | .480 |
| | N of Valid Cases | 9 | | |

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .55.

b. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .44.

Correlation Analysis-Significant Relationship between Digital Media & Awareness

As per underlying study’s findings, hypothesis two is also accepted through Application of “Bivariate Pearson Correlation Test” by putting one independent variable and more than two dependent variables. Hence it is proved that there is no significant relationship found between digital media (e-papers & organizational websites) and awareness factor regarding food waste issue in Pakistan.

Table 3: *Correlation*

| | Do you know that waste is increasing globally? people waste food? | Do you know food economic, environmental and other problems to the planet and people? | Do you know food wastage is creating environmental problems that can be a risk for planet? | Do you believe that food waste is a risk for planet? |
|--|--|---|--|--|
| Are you user of digital media (e-papers & websites)? | -.041 | -.015 | -.089 | |
| | .564 | .834 | .210 | |
| | 198 | 199 | 199 | 199 |

Discussion

Albeit many researchers had conducted their researches over food waste issue from different countries & many of them highlighted scientific issues, some talked about economic issues, some discussed climate issues and some have poured light over hunger issues, few talked about awareness in combination. There is merely one study which majorly caters “media channels” investigated that health and risk communication literature recommended that mass media channels are the major influencers on social level risk judgment. But as per findings personal level risk is more to be influenced, to some extent by mass media channels and the health risk included were diseases. McComs (2007)’s this study supported underlying study’s stance that media is ultimately a powerful tool to highlight in this regard to aware people and educate them to prevent themselves and others as well as planet earth.

Multiple researchers have done their works beautifully by sharing the pearls of their wisdom regarding research and their fields but one another study supported the underlying study which orbits around Food Wastage & Implications for Sustainable Policy. They had informed in their article that there are eighteen recovery programs in entire world, they highlighted resource conservation, economic costs, food securities, economic and environmental impacts and transitions to more sustainability with regard of policies and critical effective policy development (Thyberg & Tonjes, 2016). And Underlying study is also

fundamentally shedding a light over the united nation's sustainable development programmer with regard of food safety by catering the same factors and checking audience perception as well as impact over them.

The one major thing which this study is orbiting around was "Digital Media" Researcher have not found any study which directly or indirectly talked about it with regard of information flow or awareness program and not even regarding influential tool although one of the studies talked about social media only but that was particularly social media sites and related to risk communication but not applied that to food waste issue (Raats *et al.*, 2014). Whereas only McComm (2007) has discussed "media" but that was just a minor aspect of his study and he took main stream media of that time and talked about that as main influencer and supported.

Myoungsoon (2016) In this study research had compared websites and papers with regard of risk assessment and management. Which is also becoming a base of underlying study as it contains research with the view that "media" whether "digital" or "electronic" it has a strong impact over audience and specially in contemporary era "digital media" prevailed and social abilities have created a completely new world for public. Blogs, Social Networking sites, internet communities have become so much significant part of life for mostly people in Pakistan as well as America so as whole world. This proliferation and increasing usage of digital media provides a platform for nurturing and impacting people's cognitive behaviors. The matter of strategic significance about every organization in this high tech and dynamic world is relationship building and its maintenance and enhancement. For this purpose, relationship marketing is used without having any doubt considered as a field of interest among Experts. It is used by organizations in whole world for developing relationship with general public. The organizations and experts who ebulliently want to fetch change in society they need to consider digital media as best tool so far.

So consequently researcher wants to Suggest some amendments in neo institutionalism theory as this theory suggests that institutional structures rules and cultures constrain the choices and actions of individuals when they are part of any institution or any political institution (social structure) so there should be discussion over role of media or digital media in this theory because when it comes to cognitive learning of individuals of social structures who are part of institutions or may relate to them or a stakeholders in any way they demand some good communication level and in this era digital media plays vital role in this regard to create strong influence over individuals so as society .This theory lacks this portion to discuss when it talks about influence and communication it is significant to prominently highlight this most important aspect of interaction and ascendancy of better understanding.

Conclusion

The study proved that there is a lack of food risk's communication in Pakistan's digital media (e-papers & organizational websites) as compare to America's digital media (e-papers & organizational websites) & The digital media (e-papers & organizational websites) is creating less awareness regarding food waste issue in Pakistan and America, this hypothesis has been proved by doing content analysis of e-papers & organizational websites of America and Pakistan as well as conducted survey from both countries and took both methodologies under quantitative research design and applied chi-square test and well as bivariate Pearson correlation test by putting "Food Risk communication" as dependent variable & "Digital media (e-papers & organizational websites)" as independent variable. Thus, there is a need of some modifications in "new institutionalism theory" as organizational sites should have to be introduced properly to folk for cognitive type influence. Whereas media is not acting properly as per social responsibility theory.

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Conflict of Interest

Authors have no conflict of interest.

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