Social Media and Health Information Seeking Behavior regarding Breast Cancer: Application & Extension of the Comprehensive Model of Information Seeking in Pakistan

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Abstract- The current study used the comprehensive model of information seeking (CMIS)to measure the breast cancer related information seeking behavior of women. Researchers extended the model in Pakistan's settings by adding social stigma as a significant factor for information seeking from social media regarding breast cancer.It was hypothesized that there is likely to be an association between social stigma and utility of information channel regarding breast cancer. Moreover, it was also assumed that utility of information channelserves as mediator in the relationship between demographics, social stigma, direct experience, salience, beliefs, and information-carrier characteristics in breast cancer related information seeking behavior. The sample was comprised of 600women from the Capital territory of Islamabad and surrounding areas. A survey was conducted through convenient sampling technique. Data collection measures were comprised of an indigenous demographic sheet, CMIS (Direct Experience, Salience, Beliefs, Utility of information channel and Information-Carrier Characteristics) Cancer and Stigma Scale (CASS) and information seeking behavior (ISB). SPSS-25 was used to carry out the analyses. Moreover, Pearson Product-Moment Correlation test, Simple Linear regression and Multiple Linear Regression were performed. A significant relationship was found between the social stigma and information seeking behavior regarding breast cancer. Therefore, the study carried out significant findings.

Keywords: Social media,Health Information seeking behavior (HISB), Comprehensive model of information seeking (CMIS), Social Stigma, Breast Cancer (BC), Women.

I. INTRODUCTION

Breast cancer disease is recorded as one of the most prevalent ailments amongst women within Pakistan. (Arshad et al., 2019).Pakistan tops the list of the Asian countries with most frequent breast cancer cases. One out of every nine Pakistani women is diagnosed with this disease(Naz et al., 2016). In Asia, Pakistan is the country where breast cancer disease is diagnosed most frequently amongst the whole population. According to statistics, this disease is responsible for the demise of nearly 40,000 women every year. (The Pink Ribbon Pakistan, 2020). The rate at which this disease occurs can effectively be reduced if early detection methods are exercised. The earlier the disease is diagnosed, the higher are the survival chances. Early diagnosis is deemed as key to contain the breast cancer disease (Agha & Rind, 2021). One thing that is obvious among the women in Pakistan is the lack of awareness regarding the possible risk factors of BC. Most of the studies regarding BC have proved that this lack-of-awareness factor leads to high death rate or low survival rate. (Agha and Tarar, 2019; Gulzar, 2019).

Breast Cancer is a threat looming large over Pakistani women. Illiteracy and unawareness are the two most evident factors, but another rather covert factor that has been playing the most important role in keeping this disease from getting diagnosed at a much earlier stage, when it can be effectively purged, is that disclosure and discussion of contracting this disease is considered a taboo in Pakistani society. To discuss this disease is an extremely difficult task for the victim. Social stigma related to the term ''breasts'' is simply way too high (Naqvi et al., 2016).

Studies record an ever-increasing reluctance amongst women to disclose this disease because of the 'potential' embarrassment that they think they will have to face afterwards. (Maqsood et al., 2009). The fact that an unreceptive atmosphere, that does not let people amiably welcome the person detected with Breast cancer, exists within Pakistani society is clearly manifested through some of the studies. In Pakistani culture, members of most of the families consider women as an 'honour' and 'prestige'. A woman is looked at with extreme repulsion by her family members if she discusses her private issues openly. Breast cancer is a phenomenon akin to a social taboo and person who discloses it gets frowned at by others, which leads to victims becoming mentally traumatized. (Mukhtar, 2015).

These limitations that make a woman keep her woes covert lead her to an absolute agony, and then a time comes when disclosure becomes inevitable and she is no more able to keep her ailment shrouded. When a woman is marred with social constraints and suspects that something is wrong with her body as she detects the manifestation of some particular symptoms, secret ways of acquiring information become the keys to address the problem without inviting the wrath of the immediate family members and society. Nowadays, when proliferation of internet is at its peak throughout Pakistan, Social Media are extensively being used by women to address the problems that they face, particularly those that pertain to health. (Van Stee & Yang, 2018; Volkman et al., 2014).

By using social media, women search the Breast Cancer symptoms online, without even making their families realize that they are in need to find out information about this disease. (Muhamad, Afshari & Mohamed, 2011). By searching the social media, women are even able to become mindful of potential treatments, such as; healthy lifestyles, medical details, and even available surgical options.

In such circumstances, social media brings healthcare to a new degree as it introduces new ways to connect to the masses whereby people can communicate to healthcare experts online, without any social pressures and, therefore, become aware of the potential ways that could address the problems they face. This can be a huge step forward in reducing the rate at which breast cancer occurs in Pakistan. (Mansour et al., 2018).

Comprehensive Model of Information Seeking

CMIS is a well-known model to research experts and has been used to study the predictors of health information seeking Behavior (HISB), and especially relates to information-seeking associated with cancer (Ibinaiye, 2021). This model makes available a framework that helps the researchers in predicting the health information seeking behaviorbuilt on attributes and perceptions of those who seek information (Johnson & Meischke, 1993). In his book, Johnson (1997) mentioned the information seeking as "purposive acquisition of information from selected information carriers" (p. 26).

The progress in CMIS model occurred on the basis of other healthcare models which existed before it. Two of them, for instance, are the Health Belief Mode and Uses & Gratification Theory. The CMIS (Johnson & Meischke, 1993) was established to be used in the orthodox media contexts.

CMIS model examines the antecedents of information-seeking behaviour, for instance; personal experiences that pertain to the disease, personal relevance (a combination of personal beliefs and salience), and demographic attributes (Johnson, 1997). According to this model, the antecedents make a user start with the search behavior, help him/her with regulation of while choosing the information carriers and search skill sets. The information- carrier attributes also help in determining the choices that consumers make and carve out the base of the search process (Johnson, 1997). For instance; seeking health information on Television would be comprised of a different approach than on internet or any provided magazine papers.

Demographics

Researchers associated with information seeking behavior (Van & Yang, 2018) most of the time, concentrate on information that relates to Cancer, which includes nearly all of the demographic attributes that include Age, Race, Gender, income, and education.

Direct Experience

Direct experience, put forward byJohnson and Meischke (1993), is a concept that includes the disease experience; containing the individuals themselves and the others that they meet within their social circles (Van & Yang, 2018).

Salience

Salience, in CMIS, concerns with the problems that pertain to health. Salience, as defined byJohnson and Meischke (1993), "health information that is of considerable importance to any individual is related to the extent to which the individual feels the perceived health threat"(p. 347). Although referred to, by Johnson and Meischke, as idiosyncratic possibility and fright, more advanced researches have used the term ''worry'' instead of ''fear'' whilst defining salience (Lee, 2016).

Beliefs

As is it associated with health information seeking behavior, individuals who think that there are certainpoints they are able to exercise to bring improvement in their health or to preserve their contemporary fitness must be more curious to seek information associated with health than the ones who view themselves as unable to do anything to alter their current health status.

Information-Carrier Characteristics

In the CMIS, factors that tend to transmit information are inclusive of Utility and Information-carrier features. Study that has been conducted earlier also bolsters the proposal that information-carrier features directly as well as indirectly (through the means of utility) profoundly affect the HISB (Johnson & Meischke, 1993). Johnson and Meischke (1993) found, in an experiment related to the model with conventional media that the route that was stoutest in the CMIS had been the one comes up from information-carrier features to utility of information channel. Online contexts have also been found to support the part that information-carrier features play in the CMIS.

Utility of Information Channel

As per Johnson and Meichke (1993), utility, the other factor that carries information, plays a pivotal part in in the CMIS as it acts as a mediator between therelationship of health-concerned factors and information-carrier features on health information seeking behavior. They define utility as the extent to which information travelling through any medium fulfills the requirements that an individual seeks, defined in prior studies as faith in the source from which the information emanates and perceived capability to reach that information (Hamilton and Klabunde, 2015).Utility is defined as the extent to which, in a given medium, information fulfills the requirements that an individual tends to seek (Johnson & Meischke, 1993); it has been put forward in various prior studies as belief in the source from where the information emanates perceived capability to reach that information (Hartoonian et al., 2014).

Numerous researchers(Ibinaiye, 2021; Ruppel, 2016; Han et al., 2010; Grasso & Bell, 2015; Li et al., 2014; Van Stee & Yang, 2018; Basnyat, Nekmat, Jiang & Lin, 2018; Bernadas and & Jiang, 2019) used CMIS as basis for their work. They prioritized the expansion of the CMIS framework in order to predict the online health information seeking behaviorabout Facebook, Twitter, healthcare providers, cancer patients or fighters, kidney failure or transplant, strokes, and other associated diseases. Investigators have added the resultant variables, for instance; gratification with the process of searching information (Robinson et al., 2006) and have applied the CMIS method to online scanning of the information pertaining to health. (Ruppel, 2016).

In another research, CMIS was used to an online intervention for the patients of the breast cancer   so that the intervention information service use could be predicted (Han et al., 2010). Bell and Grasso (2015) inspected and added curiosity into the study as a possible predictor of the HISB. The findings of their studies point out the role that curiosity has to play in prediction of the HISB, despite low perceived risk among people for the health issue. The finding bolsters the role of curiosity regarding the disease in predicting the health issue. Li and colleagues (2014) were also able to reinforce the factor of curiosity in health information seeking behavior prediction, especially when the online context is considered. They established curiosity as the most commonly recorded reason for online health information seeking behavior (McGillivray, Murayama, & Castel, 2015). In contrast to curiosity, that is a condition activated by a spur, Interest is a rather persistent cognitive matter and has turned out to be a powerful indicator of information-seeking.

An earlier research bolsters such prediction as it concludes that the exchange of information between clinicians and patients predicted the factor of seeking cancer-related information from channels that were not based on medicine (Moldovan-Johnson et al., 2014).

Johnson and Case (2012) were of the view that the antecedents incite the motivation to seek information, while the factors that carry information, such as utility, govern the intentions of the people in seeking information that emanates from a specific source.

Basnyat, Nekmat, Jiang and Lin (2018) deemed internet as one of the antecedent factors and the factor of personal relevance salience is further distributed into two aspects that are the severity and the susceptibility. They examined the relationship present between antecedents associated to health, factors that carry information, and their influence on seeking information online using the Structural Equation Modelling Analysis. The outcome pertaining to those who sought health information online in India demonstrated quite a significant proximity between duration and frequency of the use of media and self-efficacy to engage in the preventive behaviour to the utility carrying information.

Xiao et al., (2020) used the CMIS as a theoretical framework in predicting smoking related information seeking. They found in their research that demographic factors such as; income, age, education, sexual orientation, beliefs regarding behavior and salience considered as noteworthy predictors of perceived utility of information. Another research conducted by Reifegerste, Blech & Dechant (2020) altered and extended the CMIS framework by adding to it the aspects of Social Network Ties in order to predict proxy information-seeking intentions, and the subsequent social-support intentions. They hypothesized that those who were from the social network and were victims of depression varied in magnitude of the ailment and relationship proximity to examine their effect on model variables.

A study that is much more relatable to the present research is the one in which Van Stee and Yang (2018) examined the CMIS in empirical manner where a nation-wide sample of U.S. adults was taken into account. Extension in the model was made by addition of interest in online exchange of health-related information and cancer concern as study variables, which was pivotal in predicting online cancer information seeking.According to Van Stee and Yang (2018) taking into account the proliferation of the exchange of health information between the patients and the providers (Patel et al., 2015), it is the need of the time to incorporate CMIS into this aspect of online health information seeking behavior.

The present study is being conducted to increase the feasibility of CMIS with inclusion of social stigma in the health information seeking from social media. The factor of social stigma in seeking information regarding breast cancerhas been used to predict online cancer information seekingbehavior via the utility, just like the other factors related to health in the CMIS. By using social media, women search the Breast Cancer information online, without even making others realize that they are in need to find out information about this particular disease. (Muhamad et al., 2011). However this research aimed to further the viability of the Comprehensive Model of Information Seeking in Pakistan's settings by considering the social stigma as a significant factor/antecedent for information-seeking behavior on the ailment of Breast Cancer. It is highly valuable to extend the CMIS to this aspect.
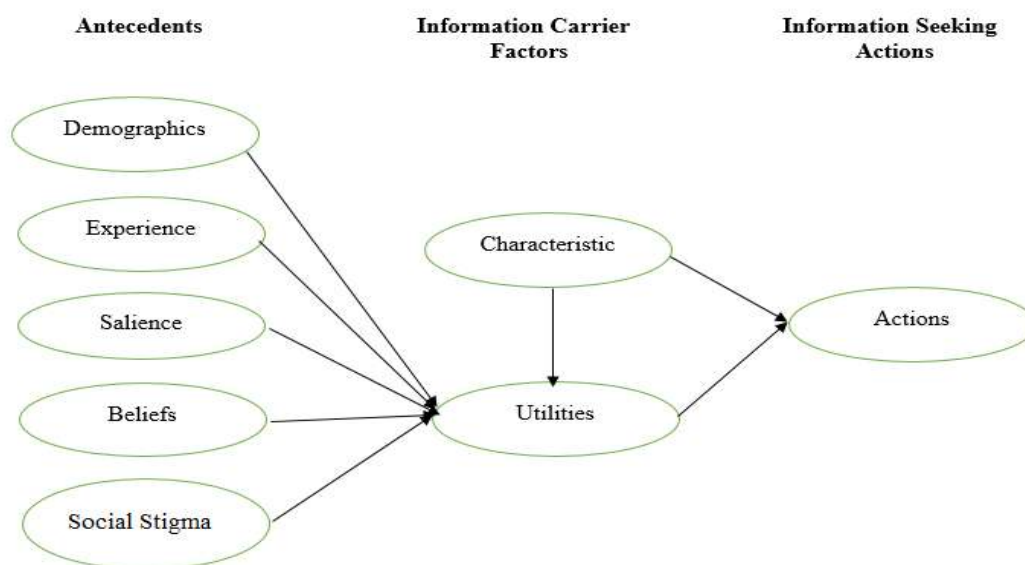

Figure 1. Hypothesized model of information seeking regarding Breast Cancer

II.   LITERATURE REVIEW

2.1   Use of Social Media and Health Information Seeking Behaviour

As per Johnson (2003) Information-seeking behavior is a deliberate and goal-directed phenomenon to acquire information. Health information-seeking behavior is indicative of the requirement and the way people explore and employ information pertaining to ailment, its symptoms and recognition, (which could either be through self-examination or getting checked-up by a doctor), safety measures and treatment. The study concentrates on the Social media including Support Groups or Medical profession groups (such as; Mahram) on Facebook, Twitter, LinkedIn, YouTube, as well as online forums/blogs.

According to Akakandelwa and Walubita (2017), social media enables the user to interact with one another in such manner, that users share information, knowledge, opinions online. It also enables one to communicate, edit user generated content. Users can generate, share or exchange the information in online societies through which other people with having similar interest can also communicate on such posts. (Sharma & Shukla, 2016; Smock et al., 2011). Social media enables individuals to remain in contact with one another.

The social media has turned out to be an appealing source for seeking health care information (Cotten & Gupta, 2004). Also, the social media ensures its users privacy, provides with information using various formats such as graphics, video, most recent health information for almost every person's requirement, Professional help factors in accordance with health, etc.

2.2   Social Stigma and health information seeking behavior

Sociologist Goffman (1967) is acknowledged for the contemporary understanding of stigma associated with disease. He is of the view that stigma is an attribute that relates a person to an unwanted stereotype. He contended that the person who is a victim of Social Stigma is reduced from an ordinary person to a disgraced one in others' perceptions. Stigma is a Social happening or a personal experience defined by social segregation/rejection or devaluation which is an outcome of some experience or expectation related to a hostile societal decree aimed at a person or even a group of people. A recent report by UNICEF in 2020 deems health-related social stigma as a negative relationship between a person and a group that comprises of people afflicted with characteristics of a similar disease.

Social Stigma associated with discovery and diagnosis of breast cancer mostly stops women from apprising relatives or neighbors of the ailment (Banning et al., 2009). Cultural impediments inflict a huge impact on awareness regarding the health of breast. Most Asia women become reluctant when it comes to the self-examining of the breast because of the taboo associated with touching oneself (Choudhry et al., 1998), embarrassment that accompanies with the discussion/disclosure about the matters related to the intimate parts of the body, or getting examined by a male health expert (Bottoroff et al., 1998). Most Asian women are oblivious of the self-examination. They could have heard about the breast screening but they are not mindful of its advantages (Bhakta, 1995, Raishidi and Rajaram, 2000, Banning and Hafeez, 2009).

Considering the inadequate available evidence, it is turning out to be quite evident that the cultural sensitivity associated with breasts bars many Asian women from debating the breast health with family members, including the female members such as; daughters or other members such as; husbands, or take part in practices related to Breast Screening. The seriousness of the situation Manifests only when a lump develops on the breasts. Banning et al., (2010) discover the suffering of women in association to breast cancer the potential impact of the culture on this suffering. This study acknowledges that cultural differences do exist in relation to the breasts. Pakistani women that are residing and in Pakistan see breasts as concealed body parts that must not be disclosed or discussed.

III. HYPOTHESES

Researchers used the comprehensive model of information seeking to measure the breast cancer related information seeking behavior of women. They extended the model in Pakistan's settings by adding social stigma as a significant factor/antecedentto seek breast cancer related information seeking from social media (see Figure 1 for the hypothesized model). In the light of previous researches based on CMIS (Ruppel, 2016; Han et al., 2010; Grasso & Bell, 2015; Li et al., 2014; Hartoonian et al., 2014; Van & Yang, 2018; Basnyat, Nekmat, Jiang & Lin, 2018; Xiao et al., 2020; Reifegerste, Blech & Dechant, 2020) following hypotheses were formulated; there is a significant association between social stigma, utility and health information seeking behavior regarding breast cancer (H1-H2);factors such as; demographics (i.e. income level (a), family setup(b) and (c) marital status); direct experience, salience, beliefs, and social stigmaareimportant predictors of utility(H3-H9).It was also hypothesized that information-carrier characteristics significantly predicts utility (H10). Furthermore, Researchers assumed that this is likely that utility mediates the relationships between demographics (a), social stigma (b), direct experience (c), salience (d), beliefs (e) trust (f), and information carrier characteristics (f) in health information seeking behavior (H11-H16).

IV. METHOD

To examine the information seeking behavior regarding breast cancer, a survey was conducted amongst women(N = 600).

4.1 Survey
Researchers designed a questionnaire contained4segments i.e. indigenous demographic sheet, Comprehensive model of information seeking, health information seeking behavior andsocial stigma to gather data from the sampled respondents.

4.2   Sample
To examine the information seeking pattern, a sample of 600 women from the federal capital Islamabad including surrounding areas of Rawalpindi were selected through convenientsampling technique. Total 720 questionnaires were distributed among women. The questionnaires with irrelevant and incomplete

responses were excluded for the analyses.Therefore, 600 questionnaires were considered final. The total response rate was 76.9 percent.

4.3   Measures

The factors such as; demographics, direct experience, salience, beliefs and social stigma weretaken as independent variables while health information seeking behavior was dependent variable. Information carrier characteristics were taken as moderating variable in this study while the mediator variable was utility.

4.3.1   Comprehensive Model of Information Seeking (CMIS)

This study adapted the CMIS related items from Van Stee and Yang (2018) and Hartoonian et al., (2014) to test the model in Pakistan's settings. The model consists of factors (a) Direct experience was measured with three items (b) Salience with two items (c) Beliefs with four items (d) Utility of information channel with three items (e) Information Carrier Characteristics with four items.

4.3.2   Cancer and Stigma Scale (CASS)

To measure social stigma among women, a tool for cancer and stigmascale (CASS), developed by Marlow and Wardle (2014) was adapted by the researchers. This scale was used in the general population. This scale consisted of with 25 items includingsix subscales, representing: Awkwardness (5 items), Severity (5 items), Avoidance (5 items), Policy Opposition (4), Personal Responsibility (4) and Financial Discrimination (3).The responses for each statement were based on 5 point Likert scale, 1 as strongly disagree; 2 as disagree; 3 as neutral; 4 as agree; and 5 as strongly agree.

4.3.3   Information Seeking Behavior (ISB)

Items (Van Stee and Yang, 2018) ", Have you used the social media to look for breast cancer information?" The responses included yes (1) and no (2) and how frequently do you seek information regarding breast cancer. Also, Information-seeking behavior scale by Timmers and Glas (2010) was adopted and modified by the researchers to examine health information seeking behavior of women regarding breast cancer. This instrument uses a 5-point Likert scale as follows: 5 (always); 4 (usually); 3 (sometimes); 2 (occasionally); and 1 (hardly ever or never). Respondents are asked about what they do when they are searching for information. There are 11 items for using sources, 13 items for applying search strategies, 15 items for evaluating information and five items for referring to information.Researchers adopted and modified the relevant items from the scale to measure women's behavior regarding breast cancer.

V.   FINDINGS AND DISCUSSION

Following table shows the frequencies of all the demographic variables.

Table 1. Frequency Table of Demographic Variables

Characteristics	Frequency	Percentage
Income Level		
Low-Middle Income	430	71.7
High Income	170	28.3
Marital Status		
Married	373	62.2
Single	227	37.8
Family Setup		
Joint Family Setup	341	56.8
NuclearFamily Setup	259	43.2

Total	**600**	**100.0**

The study participants were 600 women from Pakistan. As shown in Table 1, of the 600 participants, 430 (71.7%) were belonged to low-middle income level, 170 (28.3%) were from high income level. Out of 600 women who participated in the survey, 373 (62.2%) were married, and 227 (37.8%) were single. Furthermore, out of 600 respondents, 341 (56.8%) respondents were from joint family setup whereas, 259 (43.2%) belonged to Nuclear family setup.

Table 2. Pearson product moment correlation coefficient of social stigma, Utility and health information seeking behavior of women

Variables	Social Stigma	Utility
HISB	.864**	.406**

Correlation: **$p < .01$

Pearson Product Moment Correlation Coefficient was employed to find relationship among social stigma, utility of information channel and women's health information seeking behavior, and to test H1 and H2, Table 2 indicates a positive relation between social stigma, utility of information channel and women's health information seeking behavior (Muhamad et al, 2011).Rasmussen et al., (2013) Peopleseek help from social media about the stigmatizingdiseases. Another explanation could be that the social media users find and seek information from different online communities by controlling their conditions even without revealing their identities (Liang & Scammon, 2011).Thus, the hypotheses were supported and found in hypothesized direction. Table 2 further indicates a positive relationship between utility of information channel and health information seeking behavior.

Table 3. Simple Linear Regression of Utility on Factors

Variables		R^2	B	95%CI	β	t	p
Income Level		.002	-.182	[-.550, .185]	-.040	-.974	.330
Family Setup		.001	-.137	[-.471, .198]	-.033	-.801	.424
Marital Status		.001	-.128	[-.470, .214]	-.030	-.737	.461
Direct Experience		.000	-.025	[-.269, .219]	-.008	-.023	.839
Salience		.107	.346	[.266, .427]	.328	8.484	.000
Beliefs	.041		.170	[.104, .235]	.203	5.074	.000
I.C.C	.274		.121	[.105, .136]	.523	15.01	.000
S.Stig.		.195	.103	[.086, .120]	.442	12.03	.000

Note. Each pair of columns reports the results of a Linear regression analysis with the dependent variable of Utility of information. CI= confidence interval; I.C.C=Information Carrier Characteristics; S.Stig.=Social Stigma; Income level(Low-Middle Income=1,High Income=2);Family Setup(Nuclear=1,Joint=2);Marital Status(Married=1, Single=2)

Findings revealed from the above table that demographics such as; income level, family setup and marital status of women are not significant predictors of utility. These findings (H3-H5) were supported and validated with the findings of Reifegerste et al., (2020) that demographics are not related to information seeking. Furthermore, Table 3 reveals that while predicting the utility, direct experience is not a considerable factor. A potential explanation for this particular conclusion would be that the factor of direct experience is only taken into account with personal experience in the present study, whereas personal and social experiences, both, are parts of the original CMIS framework (Xiao, et al., 2020).The findings revealed that salience explains a significant amount of variance in utility of information, F(1, 598)= 71.97, R2 adjusted =106. The regression coefficient (B=.346, 95%CI [.266, .427] indicates that an increase in one silence corresponded, on average to an increase in utility of information channel score .346 points. As shown in Table, the value of p is also significant (P<0.01). However; demographics,

salience, and experience managed to directly affect proxy information-seeking intentions, as opposed to the expectations (Reifegerste, et al., 2020).

Another factor that played immense role in the prediction of utility was belief. The results F (1, 598) = 25.74, R^2 adjusted =.040. The regression coefficient (B=.170, 95%CI [.104, .235] indicated significant impact of salience on utility of information. Beliefs of higher self-efficacy were able to predict more significant perceived utility pertaining to the online health information. Johnson and Meischke (1993) ascertained that, while prediction of HISB within the sphere of Magazines, many factors pertaining to health, including beliefs, played a very diminishing role. Robinson et al., 2006 concluded that the role that belief plays in predicting the utility is insufficient.

Moreover, number of social stigma explains a significant amount of variance in utility of information, F(1, 598)= 144.82, R^2 adjusted =.194. The regression coefficient (B=.103, 95%CI [.086, .120] indicates that an increase in one stigma corresponded, on average to an increase in utility of information channel score .103 points. However, the value of Pearson correlation =.442** is also significant (P<0.01).Additionally, hypothesis was confirmed by the findings of this study (see Table 3).

Another findings explains a significant amount of variance in utility of information, F(1, 598)= 225.46, R^2 adjusted =.273. The regression coefficient (B=.121, 95%CI [.105, .136] indicates that an increase is corresponded, on average to an increase in utility of information channel score .103 points. However, the value of Pearson correlation =.523** is also significant (P<0.01).

Table 4. Multiple Linear Regression of Factors

Variables	B	Std. Error	β	R^2	F	t	p
U.I.C	1.203	.111	.404			10.789	.000
Demo	-.232	.281	-.031	.166	59.280	-.824	.000
I.C.C	.601	.070	.242			8.585	.000
Trust	1.498	.064	.655	.538	348.048	23.254	.000
U.I.C	.698	.099	.234			7.038	.000
Salience	1.064	.105	.523	.409	206.71	15.715	.000
U.I.C	1.041	.109	.350			9.587	.000
Beliefs	.685	.091	.276	.238	92.989	7.549	.000
U.I.C	.090	.068	.030			1.325	.186
S.Stig.	.591	.016	.850	.747	80.839	37.055	.000
U.I.C	1.041	.109	.350			9.587	.000
I.C.C	.685	.091	.276	.238	92.989	7.549	.000

Notes: Each pair of columns reports the results of a multiple linear regression analyses with the dependent variable of health information seeking behavior. *p<0.05; **p<0.01; ***p<0.001; U.I.C: Utility of Information Channel; Demo:Demographics of women; S.Stig.: Social Stigma; I.C.C: Information Carrier Characteristics; HISB: Health Information Seeking Behavior

Additionally, multiple linear regression analyses was performed to examine the influence on relationship of predictor variables on health information seeking behavior. The R-Square value of .166 revealed that the predictor variables explained 16 % variance in the Health information seeking behavior. As shown in Table 4, the value of P is also significant (P<0.01). Thus, it can be concluded that the independent variables have considerable capabilities in predicting utility of information channel in relationship with demographics and health information seeking behavior (Ruppel,2016).

Results further showed that the R-Square value of .538 revealed that the predictor variables explained 53 % variance in the Health information seeking behavior. As shown in table 4, the value of P is also

significant (P<0.01). Thus, it can be concluded that the independent variables have considerable capabilities in predicting utility of information channel as a mediator in health information seeking behavior. Conclusions from previous studies also advocated that characteristics (comprehension of information) and utility (confidence and trust) as pivotal factors in regards to behaviors of information-seeking and also emphasizing trust as the most significant predictor (Xiao, et al., 2020).

Additionally, hypothesis was confirmed by the findings of this study that salience had significant relationship with the utility as R-Square value of .409 revealed that the predictor variables explained 40 % variance in the Health information seeking behavior. As shown in Table, the value of p is also significant (P<0.01).These results confirmed H, and also supported Xiao, et al., (2020) findings that Salience directly affects perceived utility. These results confirmed hypothesis, and also supported Xiao, et al., (2020) findings that Salience directly affects utility.

Results further indicated that beliefs the R-Square value of .238 revealed that the predictor variables explained 23 % variance in the Health information seeking behavior. As shown in Table, the value of P is also significant (P<0.01). Table reveals that the standardized beta-values=.350 for Utility of Information and beliefs=.276, which indicate individual variables' contribution in predicting the dependent variable. Beliefs of higher self-efficacy were able to predict more significant perceived utility pertaining to the online health information(Johnson and Meischke, 1993).

The influence of predictor variables on health information seeking behavior. The R-Square value of .747revealed that the predictor variables explained 74 % variance in the Health information seeking behavior. As shown in Table, the value of p is also significant (P<0.01). Thus, it can be concluded that the independent variables have considerable capabilities in predicting utility of information channel in demographics. Findings revealed that the standardized beta-values, which indicate individual variables' contribution in predicting the dependent variable (Table 4). This conclusion effectively bolsters our deliberate attempt to broaden the CMIS so that Social Stigma could be taken into account while conducting study on online health information seeking. This factor makes the present study unique.

Additionally, the hypothesis was confirmed by the findings of this study (see Table 4).The R-Square value of .23 revealed that the predictor variables explained 23 % variance in the Health information seeking behavior. The value of p is also significant (P<0.01). Thus, it can be concluded that the independent variables have considerable capabilities in predicting utility of information channel as a mediator in health information seeking behavior. Conclusions are akin to researches conducted by Robinson et al. (2006) and Van Stee & Yang (2018) that pointed out online cancer information seeking being positively predicted by the information carrier characteristics.

VI. CONCLUSION

This study aimed to measure the breast cancer related information seeking behavior by using social media. Researchers tested and extended the comprehensive model of information seeking in Pakistan's settings. The significant findings were being carried out on the use of the CMIS to predict breast cancer information seeking behavior. The future researchers may examine active and passive information seeking behaviors on general health issues. Also, the role of stigma into different angles may also be studied.

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