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## SOURCE CREDIBILITY IN HEALTH PROMOTION INFORMATION DISSEMINATION: A SYSTEMATIC REVIEW (SLR)

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### Abstract

This systematic literature review study emphasized the Source Credibility (SC) in the dissemination of health information. The objective of this peer-to-peer review is to analyse the importance of SC in the dissemination of health information. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) is used as the method of study. Web of Science (WoS) and Scopus databases were the two main sources for retrieving the articles. The study found 19 articles and 28 articles in Scopus and WoS. After the screening process, only 5 articles met the criteria. All of the rejected articles were duplicated - in book form, book chapter, proceedings paper; did not comply with the stated themes (SC, trustworthiness, competence, attractiveness, and dynamism); articles based on non-empirical data focused on technical measurement; and failure to retrieve full article due to access problems. The study found SC is one of the factors that enables users to validate whether the health information credible or vice versa. However, various themes were identified as themes in the present study that will make the health information source credible, such as competence, trustworthiness, wordiness, as well as source attractiveness

### 1.INTRODUCTION

Aristotle, the guru of persuasion strategy has introduced *ethos* (credibility) as an important means of persuading an audience of his message. How credible the source of information is, depending on the opinion of the perceiver as defined by O'Keefe (2016), "Credibility (or, more carefully expressed, perceived credibility) consists of the judgments made by a perceiver (e.g., a message recipient) concerning the believability of a communicator" (p. 291). It is also defined as 'perceived quality' by Fogg & Tseng (1999) because it is not inherent to an object or person. Delimiting the source depends on whether the

question is being answered from the psychological or ontological perspectives (Sundar & Nass, 2001). Psychologically, the source of communication is what the receiver imagines the source to be (Sundar & Nass, 2001) and from the ontology perspective, the source is defined by its function or what it does. For instance, scholars have distinguished between an internal source and the communicator who is the originator of the message. The internal source includes individuals, groups, organisations, or institutions (Sundar & Nass, 2001). If it is viewed from digital media sources, they may be bloggers, youtubers, vloggers or internet influencers. In their early work, Hovland, Janis and Kelley (1953) identified trustworthiness and expertise as two dimensions of SC. Whitehead (1968), Berlo, Lemert & Mertz (1969), Baudhin & Davis (1972), Mc Croskey (1974), Falcione (1974), Tuppen (1974), Singletary (1976), Baker & Churchill (1977), Ohanian (1990), White (1990), Goodwin (1999) and Perloff (2003) have identified multiple dimensions, including appearance, stability, extroversion, objectivity, attractiveness, good will, competence, and dynamics.

In the field of health communication, Malaysia pays close attention to the information circulating via Telegram and Facebook from Ministry of Health (MoH) a credible source of information on the issue of covid-19 due to strong awareness campaigns on social distancing, personal hygiene, and healthcare that can have a significant impact on our health and safety. MoH facebook account recorded 2.5 millions follower during covid-19 issues which is increase 1.3 million from 1.2 million follower up till April 2020 since Malaysia started Restriction Movement Order (RMO). This statement is strongly supported by Pornpitakpan (2004) who argued that SC could increase the impact of a message not only on behaviour, but also on the background, such as beliefs and attitudes. Effective health communication, therefore enables us to empower those seeking advice, prevention, and treatment. It is very important for the virtual areas of health and well-being including disease prevention, health promotion, and quality of life.

Health promotion according to World Health Organization (WHO) is a process that enables people to increase control over their health and its determinants, thereby improving their health. That is why health information needs to be disseminated. The aim of disseminating health information is to influence personal health choices by improving health literacy. Therefore, the objective of the study is to address the importance of SC in the dissemination of information on health promotion

## **2.MATERIALS AND METHODS**

In this section, the researchers will describe the five steps in the selection of articles to be reviewed, which consists of resources, selection process, identification, screening, and eligibility. It is based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The researchers also identified the resources, criteria for insertion and elimination, systematic review process, the abstraction of data and analysis used in this study.

### **2.1 PRISMA**

PRISMA is a standard procedure for reporting systematic reviews and meta-analysis in publication. It is a method that can be used to examine the wide

range of scientific literature used in a study. As a result, PRISMA is used as a guide for assessing the quality of the data.

## 2.2 Resources

Scopus and WoS were selected to track peer-reviewed SC and health information literature. These two databases were selected based on the vigorous number of articles involving different types of studies.

## 2.3 Process for Selecting the Articles

A systematic review of peer-to-peer reviewed literature began on 9 March till 30 March 2020. –Based on the study protocol, the researchers used the same procedure of conducting a research paper with problem identification, literature search, data evaluation, data analysis, and data presentation.

### 2.3.1 Identification

Identification consists of three main facets. First, to identify the keywords of the relevant topic through previous studies. Second, to use Structured Query Language (SQL) to retrieve the database with the relevant tasks, including querying and searching for specific and related keywords, and finally, to perform a manual search to select and determine the relevant data. As stated earlier, the data retrieval will be carried out through Scopus and WoS articles. Upon a thorough examination, the researchers found 47 keywords related to the articles of which 19 articles and 28 articles from Scopus and WoS were accordingly restored. Details of the search strings as shown in Table 1.

**Table 1: The search string**

Database Search String	
Scopus	TITLE-ABS-KEY (“source credibility*”) AND (“health information*”)
WoS	TS=(“source credibility*”) AND (“health information*”)

### 2.3.2 Screening

This process required the researchers to extract the relevant data for this study. All data retrieval from the search string will be reviewed. Researchers need to identify relevant articles according to the objective of the study, including the elimination of duplication of articles. The researchers used the insertion and elimination criteria to screen the titles and abstracts of the articles in order to determine the relevance data of the research questions under study. The full text of each article was screened manually and independently by the researchers in search for the eligibility criteria. The data ranged from year 2015 to 2020 are quantitative, qualitative, and mix method in English. All retrieval articles will be reviewed on the basis of the research questions under study in Scopus and WoS. Thirteen articles have been removed due to similarity. In the interim, 28 articles were rejected because they were in the form of books, book chapters, and proceedings paper and did not comply with the stated themes (SC,

trustworthiness, competence, attractiveness, and dynamics). The details of the insertion and elimination criteria as presented in Table 2.

**Table 2: The insertion and elimination principles**

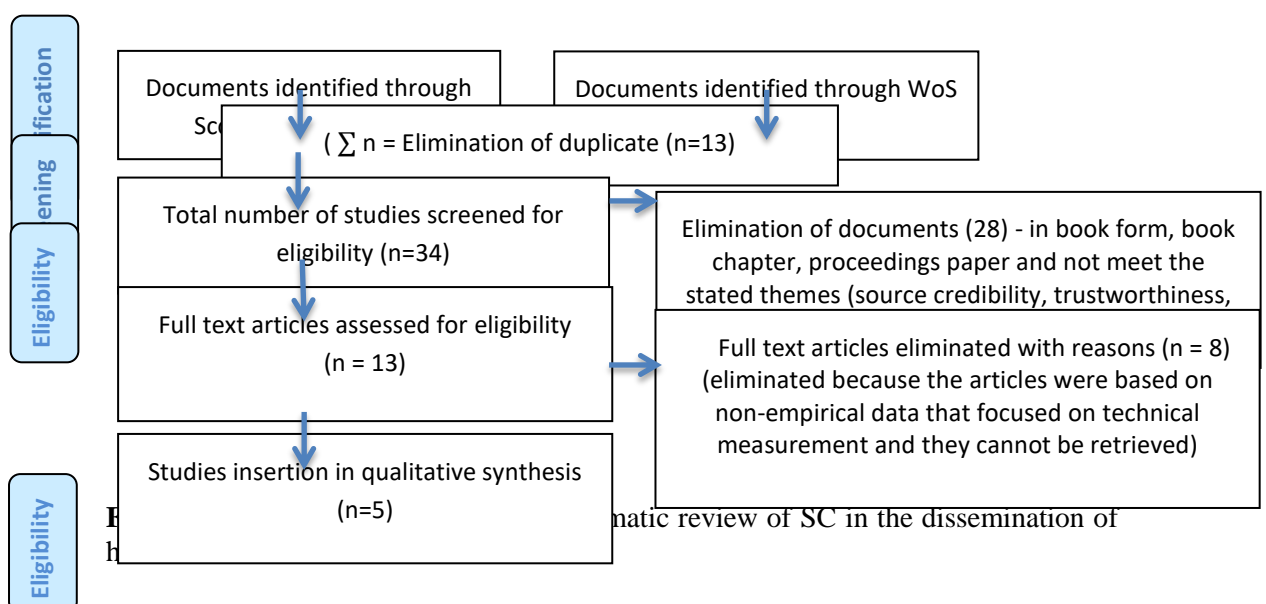
Criteria	Insertion	Elimination
Literature type	Research articles, expert opinion papers, consultation papers	Article review, book, book chapter, conference proceedings
Language	English	Non-English
Period range	2015–2020	< 2015
Subject area	Social sciences, marketing, advertising	Other than inclusion subject
Theme	SC, trustworthiness, competence, dynamic, attractiveness, health information	Other than SC, trustworthiness, competence, dynamic, attractiveness, and health information

**2.3.3 Eligibility**

After the screening process, the study found that a total of 13 articles met the criteria established by the researchers. At this stage, the researchers have thoroughly reviewed the articles based on keywords, titles, abstracts, content, findings, as well as the recommendations of previous researchers to ensure that the relevant articles are appropriate for inclusion in this study. Finally, another 8 articles were excluded because they were based on non-empirical data, which focused on technical measurement and could not be retrieved. As a result, a total of 5 articles were qualified for assessment.

**2.4 Results**

The results of 5 articles are summarized in Table 3.



The researchers screened the articles and interpreted the literature and the full text reviewed. Out of 47 articles obtained, 13 articles were removed due to duplication and 28 articles were excluded because they were in the form of book (n=2), book chapter (n=1), proceedings paper (n=2), could not be retrieved (n=1), did not comply with the stated themes (n=16) (SC, trustworthiness, competence, attractiveness, and dynamics), and focused on technical aspects (n=7). Overall, only 5 articles met the criteria and were thoroughly reviewed. Researchers summarized the articles on the basis of the research questions, theme, and hypothesis and summarized the details by systematically reviewing the articles as presented in Table 3.

**Table 3: Summary of studies that met the selection criteria**

Author	Theme	Data Collection	Research question	Sample	Summary	Support Hypothesis
Haase, Betsch, and Renkewitz (2015)	SC Health Information	Mix method (survey & forum)	SC effect on the biasing effect of narrative particulars on insight of risks in vaccination issues	Students 265 participants	Stable narrative bias on risk perception not influenced by credibility indices.  However, lower perception of vaccination risk is found in anti-vaccination website	No
Yilmaz and Johnson (2016)	SC Competency and Trustworthiness	Quantitative (survey)	Personalized vs depersonalized language & modality in Twitter and Facebook affect SC interdependently	257 participants	Depersonalized tweets - more credible Facebook – less credible  Personalized Facebook status - higher credibility judgments  Personalized tweets – lesser credibility judgements	Yes
Hamshaw, Barnett, and Lucas (2018)	SC Trustworthiness	Quantitative (survey)	Specific tweets' characteristics influence how they are understood	251 participants	High number of likes and retweets have no effect on SC ratings  Additional information through link after tweet has a positive influence on SC.	H3: No H4: Yes
Wan, Mun, and Soo (2017)	SC Source Attractiveness	Quantitative (survey)	Comments' attractiveness on health post online and its effect	189 participants	Highly attractive surface comments – higher credibility assessments  Lesser attractive surface comments – lesser credibility assessments	H1: Yes
Jin, Phua,	SC	Experiment	Impact of UGC	102	Huge number of likes as	H1: Yes

Author	Theme	Data Collection	Research question	Sample	Summary	Support Hypotheses
and Kwan (2015)	Dynamism		vs popularity of online FB page. Female college students' attitude pertaining to breastfeeding	participants	well as people following the page. Indicate positive effect from the opinion of viewers towards FB page owners.	

### 3.DISCUSSION

The above Table 3 shows that there have been studies carried out on the importance of SC in the health promotion information via systematic review. Several studies reviewed had assessed the importance of SC dimensions, such as health information, competence and trustworthiness, source attractiveness, and dynamism in disseminating health information as shown in Table 3 above.

#### **Health Information**

As summarized in the above Table 3, Haase, Betsch, and Renkewitz (2015) had studied the effect of source credibility on the biasing effect of narrative information regarding the perception of vaccination risks. Findings show that credibility indices are not affected by a biased in narrative or perception. However, the anti-vaccination website has a negative contribution, thus led to lower source credibility. This is because a stable narrative bias was discovered in all conditions that was measures in their study. Meaning that health information, irrespective of whether the narratives develop from a neutral health forum or anti-vaccination website will still attract the occurrence of narrative bias.

#### **Competency and trustworthiness**

Similarly, Yilmaz and Johnson (2016) also investigated competency and trustworthiness in source credibility on the influence of language used and modality via a quantitative study. They found that health information would be accurate and objective, which will in turn lead to positive credibility judgment if attributing machine heuristic is added to the source information (weather Twitter or Facebook) as used in the study. Hence, competence and trust wordiness were discovered from the study themes. Accordingly, they identified that the use of personalized language will affect mental health information as the study participants' preconceived expectations regarding accurate communication on Twitter, thereby affect negatively the source credibility.

Yilmaz and Johnson (2016) studied on personalized and depersonalized language on social media Twitter and Facebook in disseminating health messages. That study discovered that users who have depersonalised tweets are more credible than Facebook because when they tweet, they send valid and systematic information that might cause a heuristic device. Nonetheless, Facebook users are more personalized when they generated higher credibility judgments than in Twitter. Based on this study, it can be concluded that the interaction effect of message personalisation and modality on perceptions of SC shows that the health information messages should be personalised depending on the social media platforms. Practitioners can use Twitter to disseminate fact-based, objective, and depersonalised information, whereas Facebook can be used to send out more personalised health information.

There is research suggesting that the language used in online message construction affects the credibility of the source (Flanagin & Metzger, 2007). Meanwhile, technological affordances of social media platforms also affect

credibility judgements (Sundars, 2008). Gamze and Jessie (2016) found that users perceived depersonalised tweets as more credible than depersonalised status updates posted on Facebook.

### **Trustworthiness**

Conversely, Hamshaw, Barnett, and Lucas (2018) identified how a certain tweet's trustworthiness will be perceived based on its characteristics, which will in turn provide a trusted source credibility. The study employed a quantitative method via a survey of 251 participants and found that links information stands as a potential asset for the credibility of the health information for food hypertensive patients. They found that the concerned health community who are looking for health information regarding food hypertensive valued the information within posts other than the cues provided as to the popularity of the post. Hence, they mentioned that source credibility is determined by source attractiveness as in the case of food hypertensive patients. Hamshaw, Barnett and Lucas (2018) explored the perception that messages in Twitter are socially validated information. Inclusion of links in tweets affected inferences about the credibility of tweets, persuasiveness of the tweet content, and intention to act upon the information, found that there is no effect of social validation, such as number of likes and retweets, but the inclusion of a link increased perceived credibility of the source messages and persuasiveness of tweet content. The study also explained that the presence of links in Twitter posts had a positive effect on the ratings of message credibility. The effect of link inclusion on message credibility instead of SC may further reflect a preference towards central processing of the peripheral positions of the tweet author. Since it is proven to be linked to additional evidence, it is likely to increase the perceptions of credibility and persuasiveness of the information. Therefore, the Ministry of Health, Malaysia official Twitter account or any public health Twitter account would do well by integrating the use of links into their social media policies to attract users and encourage them to click for the right information and information details rather than full of writing in status so those who less experienced with social media use in distinguishing more trustworthy information online.

### **Source Attractiveness**

Meanwhile, Wan, Mun, and Soo (2017) studied on the attractiveness and expert source regarding online health via a quantitative study of 189 participants. The research question focus on how comments involvement is associated with the attractiveness of an online health post. They found that the impact of the source characteristics will determine how attractive and credible is the online post. Thus, identified source attractiveness as key to health information, particularly in an online post.

From a different view in their studies, instead of observing the information sender as the focal attention, Wan, Mun and Soo (2017) turned to the appearance or the level of presentable of the message will attract the readers and viewers in trusting the delivery of the sender. They soon realized that presenting the message in a more attractive and meaningful way like adding some elements of bullet points and infographics are more compelling predictor than the experts' profile. This remind us on Covid-19 infographic, a creative effort of MoH in designing an attractive health information on daily basis via conventional newspapers, Telegram, online media and social media to disseminate nationwide.

Furthermore, by providing web users with more options for comments, the online health communities can generate better credibility assessment, leading to an increase in online traffic, as web users tend to visit credible websites. It is also mentioned that providing writing templates with attractive surface interfaces can increase the perceived credibility of health-related messages

posted on websites. In previous research, SC suggested that attractiveness can influence one's credibility assessment, but cannot examine whether or not the visual attractiveness of online information can be moderated by source expertise. According to expectancy violation theory, when a low expertise source provides information in an online health information sharing community in a visually attractive manner, it may seem more credible. However, this study revealed that there is a significant main effect on attractiveness and interactions effects between attractive and source expertise on individual's perceived credibility and behavioural intentions which resulted from an online health comment. The researchers in Malaysia could run future research by focusing on additional factors, such as modality, agency, interactivity, and navigability.

### **Dynamism**

Lastly, Jin, Phua and Kwan (2015) studied the use of Facebook to tell stories regarding breastfeeding via a quantitative study of 102 participants in terms of dynamism. Their study focused on the popularity of breastfeeding pages on Facebook, particularly female college students. They found that the numbers of followers and likes determined the trust wordiness or how a health information (breast feeding) is perceived on social media platform, in this case Facebook.

In this study on breastfeeding, the researchers found that the public perception of SC is very generic and could not be more specific. In an experiment on breastfeeding on a Facebook page owned by Non-Governmental Organization (NGO), Jin, Phua, and Kwan (2015) found that the higher numbers of 'likes' and 'share' have made the page famous for convincing SC. People (experts provide advice, mothers shared experience, and perceivers) start building interest, share information, contribute new knowledge, build networking, and interacting to discuss issues, benefits, and challenges about breastfeeding more openly. The high ratings of favouring breastfeeding models and behavioural intention resulted in a high level of wishful identification and the establishment of an online social support group. People have less interest when the experts gave their opinions with the number of 'likes' about breastfeeding but favours more with the increased of 'likes' when the mothers shared their real-life experience in breastfeeding. This shows the confidence level on breastfeeding is higher in testimonial evidence than the experts whereby this statement is further strengthened with the high number of likes and followers in Twitter exert a positive effect on viewers' perceptions of the social media profile owner (Jin, Phua & Kwan, 2015).

Based on the above systematic review, it is evidenced that the rapid growth of information technology has enables the widespread use of social media platforms in the dissemination of information, including health information. As various studies have shown that Social Networking Sites (SNS) has changed the way we communicate, thus no longer a face-to-face context but has been replaced by virtual interactivity and online channel platforms for the distribution and exchange of information in health communication campaigns. Additionally, the power of SNS and the deliverance of health authority as the credible source can not only promote health messages but capable of bringing about changes in people's lives, such as the way we think about illnesses and diseases, prevention efforts, health awareness and alertness, and healthcare. Therefore, make a new and immediate way of how health authority and experts disseminate health information and the ability to connect as well as engage a wide range of people.

For instance, MoH promotes health information via multiple channels of information through social media (Facebook and Twitter) and phone apps (Telegram and MySejahtera). However, Malaysians have been advised to rely only on MoH as a credible source of information to avoid misinformation and receiving hoax news. As such, the aggressive effort of Malaysian government



during the Movement Control Order (MCO) and Conditional MCO period can be seen as fruitful when the numbers of peoples' infected was reduced to two figures. This shows the competency and dynamism of Malaysian government in combating Covid-19. Hence, the present research has been able to identify that SNS users highly trust information provided only by the experts, and not testimonial messages.

Furthermore, it also show that Social Networking Site (SNS) users do not trust other members' testimonial messages as much as they trust information given by the expert unless the page has a high number of likes and popularity attesting to its credibility (Jin & Phua, 2014). As previous studies have identified that Facebook pages with mixed comments needed to have high page popularity, in the case of pro-breastfeeding models and behavioural intention in order to result in high wishful identification and to show online social support. More so, the previous study showed that SNS can play an important role for the dissemination of pertinent health information and social support health messages for health issues, such as the case of breastfeeding in Malaysia.

This is because health information dissemination in Malaysia is widely spread through online media. Rahim, Ibrahim, Salim and Ariffin (2019) stated that there has been a sporadic increasing trend in public interest searching for online health information Malaysia that is related to their health problems. In which they found that evidence from local studies that the public perceive the information provided online to be useful and reliable, in which thereafter is forcing most Malaysians to consult with any healthcare practitioner about their health conditions directly through social media. Based on this study, the health promotion division in Malaysia should take the lead to establish Social Networking Sites (SNS) in order to attract the public by providing extra platform for them to gather information on health-related issues.

#### **4. CONCLUSION**

The present study has been able to identify that there are various ways to obtain health information. Contemporarily, one could access from social media, such as Twitter, Facebook, Instagram, and Telegram, health professionals, politicians, or any other relevant sources. The systematic reviewed in the present show that the search for health information through online is one of the best choices people engage in these days compared to print media or individuals. In this situation, the SC is one of the factors that enables users to validate whether the health information credible or vice versa. However, various themes were identified as themes in the present study that will make the health information source credible, such as competence, trust wordiness, as well as source attractiveness. All these were identified as the bases in which people nowadays give credibility to the source or promotion of any health information. Therefore, it is logical to say that source credibility of health information is now determined by social network sites (SNS) as most people now rely on online information. Based on the above-mentioned systematic review and meta-analysis, it is highly recommended that more studies be conducted to further investigate the SC in the dissemination of health information.

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