ROLE OF SOCIAL MEDIA TO DRIVE HUMAN PAPILLOMAVIRUS (HPV) VACCINE AWARENESS AMONG PARENTS OF DAUGHTERS AGED 9 TO 12 YEARS

SASITHORN SUNTHARO

A THEMATIC PAPER SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF MANAGEMENT
COLLEGE OF MANAGEMENT
MAHIDOL UNIVERSITY
2018

Thematic paper
entitled

ROLE OF SOCIAL MEDIA TO DRIVE HUMAN PAPILLOMAVIRUS (HPV) VACCINE AWARENESS AMONG PARENTS OF DAUGHTERS AGED 9 TO 12 YEARS

was submitted to the College of Management, Mahidol University
for the degree of Master of Management
on
January 30, 2018

……
Ms. Sasithorn Suntharo
Candidate

……	……
Poomporn Thamsatitdej	Asst. Prof. Prattana Punnakitikashem,
Ph.D.	Ph.D.
Advisor	Committee Member
……	……
Duangporn Arbhasil, Ph.D.	Phannaphatr Savetpanuvong, Ph.D
Dean	Committee Member
College of Management	
Mahidol University	


อตฺตานํ อุปมํ กเร
มหาวิทยาลัยมหิดล

ACKNOWLEDGEMENTS

This master independent study is conducted based on the situation of disease prevention in Thailand. I hope this study will be useful for the healthcare providers for promoting cervical cancer prevention. This study would not accomplish without support and guidance from several individuals and organizations.

First of all, I would like to express my sincere gratitude to my advisor, Poomporn Thamsatitdej, Ph.D., for his precious time and guidance for this study. He also encourages me to go far beyond the expectation.

My appreciation also extends to school directors and teachers for their support this independent study. I would like to thank my supervisor for his understanding and support throughout my study period.

I would like to thank my friends from CMMU, especially Mr. Wasan Apinantasap, and HWM classmates for their academic and emotional supports. Also thank to my classmates from Chiangmai University, Mrs. Fonthip Jangjamjang, Mr. Pitak Lertpantawong and Ms. Yodthida Suntharo for their involvement and support to complete my independence study.

Lastly, I would like to thank my parents and my brother, for their unconditional support and encouragement throughout my whole life.

Sasithorn Suntharo

ROLE OF SOCIAL MEDIA TO DRIVE HUMAN PAPILLOMAVIRUS (HPV) VACCINE AWARENESS AMONG PARENTS OF DAUGHTERS AGED 9 TO 12 YEARS

SASITHORN SUNTHARO 5749217

HWM (HEALTH CARE WELLNESS MANAGEMENT)

INDEPENDENT STUDY ADVISORY COMMITTEE: POOMPORN THAMSATITDEJ, Ph.D., PHANNAPHATR SAVETPANUVONG, Ph.D., PRATTANA PUNNAKITIKASHEM, Ph.D.

ABSTRACT

Health information can create disease prevention awareness and involves in health decision making. Social media is a communication channel that is widely used for connecting and engaging people. This study is aim to study role of social media to create HPV vaccine among parents of daughter aged 9 to 12 years. Communicating HPV vaccine information through social media needs to consider two main attributes. First, it involves trust of the information. The quality of the information is important. Parents perceive the social media help to receive accurate, evidence-based and reliable information. Parents can get balance of the information, understandable language and providing in the time that they need. Receiving the other experiences help parents receive benefit and risk of the vaccine. Parents can acquire reliable source of the information from social media such as science based, health care professional on social media to involve decision making for vaccination. Second, the usefulness of social media as a platform to disseminate the information. Parents perceive that social media facilitate the accessibility and usefulness of social media to receive and disseminate the information. Friends help parents to be aware of the information on social media. Healthcare professional may consider using social media for HPV vaccine communication to the parents.

KEY WORDS: Social media/ Health awareness/ HPV vaccine/ cervical cancer

113 pages

CONTENTS

	Page
ACKNOWLEDGEMENTS	**ii**
ABSTRACT	**iii**
LIST OF TABLES	**vii**
LIST OF FIGURES	**ix**
CHAPTER I INTRODUCTION	**1**
1.1 Social Media	2
1.2 Cervical Cancer	3
1.3 Rationale of the Study	5
1.4 Statement of Problem	5
1.5 Research Objectives	6
1.6 Research Questions	6
1.7 Scope of the Study	6
1.8 Contribution of the Study	7
CHAPTER II LITERATURE REVIEW	**8**
2.1 Health Communication and Primary Prevention	8
2.1.1 Health communication	10
2.1.2 Effective Health Communication	10
2.1.3 Health Awareness and Education	12
2.2 Social Media	13
2.2.1 Social Media Type	14
2.2.2 Social Media Function	15
2.2.3 Activity in Social Media	17
2.3 HPV Vaccine Awareness in Parents	18
2.4 Social media in Health Communication	21
2.5 Conceptual Framework	25
2.6 Research Framework	26
2.6.1 Perceived Quality of the Information	26

CONTENTS (cont.)

	Page
2.6.2 Perceived Accessibility	26
2.6.3 Perceived Usefulness	27
2.6.4 User Behaviors on Social Media	27
2.6.5 Social Influence	28
2.6.6 Content on Experience	29
2.6.7 Social Media Effect on Decision	29
2.6.8 Source of Information on Social Media and Decision	30
2.6.9 Difference of Demographic Characteristics	30
CHAPTER III RESEARCH METHODOLOGY	**32**
3.1 Research Design	32
3.2 Population and Sample Selection	34
3.2.1 Population	34
3.2.2 Sample Characteristics	34
3.2.3 Sample Size	34
3.2.4 Sample Selection	35
3.3 Data Collection Process	35
3.4 Questionnaire Design	36
3.5 Validity and Reliability Test of Questionnaire	43
3.6 Pilot Test	44
3.7 Data Collection	45
3.7.1 Distribution period	45
3.8 Data Analysis	46
CHAPTER IV RESEARCH RESULTS	**48**
4.1 Reliability of the Constructs	48
4.2 Demographic Information of the Respondents	49
4.3 Results of the Respondents' Perception on Role of Social Media to Create HPV Vaccine Awareness	52

CONTENTS (cont.)

4.4 ANOVA Analysis 67
4.5 T-Test 72
4.6 Summary 74
CHAPTER V CONCLUSION 77
5.1 Discussion 77
5.1.1 Demographic Characteristics 78
5.1.2 Perception of the Information 79
5.1.3 Usefulness of Social Media 80
5.1.4 Parents' Behaviors When Receiving HPV Vaccine Information on Social Media 80
5.1.5 Friend Influence 81
5.1.6 Decision 82
5.1.7 Key Driver 82
5.1.8 Challenges 83
5.2 Implications and Future Research Directions 84
5.2.1 Implications of the Findings 84
5.2.2 Future Research Directions 87
5.3 Limitations 88
5.4 Conclusion 88
REFERENCES 92
APPENDICES 100
Appendix A 100
Appendix B 106
Appendix C 112
BIOGRAPHY 113

LIST OF TABLES

Table		Page
2.1	Attributes of effective health communication	11
2.2	Social Ecological Model	13
2.3	Social media types	14
2.4	Function of social media platform	16
2.5	Features in social media	17
2.6	Studies of social media related to health communication	22
3.1	Component of perceived quality of the information	37
3.2	Component of perceived accessibility	38
3.3	Component of perceived usefulness	38
3.4	Component of behavior when receiving the information	39
3.5	Component of social influence	40
3.6	Component of content on experience	41
3.7	Component of social media influence decision	42
3.8	Component of source of the information on social media effects decision	42
3.9	Reliability analysis in pilot test	45
4.1	Reliability analysis	48
4.2	Demographic profile of the respondents	50
4.3	Preferred health information of the respondents	52
4.4	HPV vaccine background of the respondents	52
4.5	Summary of Hypotheses Testing Result for Hypothesis 1	53
4.6	Summary of Hypotheses Testing Result for Hypothesis 2	54
4.7	Summary of Hypotheses Testing Result for Hypothesis 3	56
4.8	Summary of Hypotheses Testing Result for Hypothesis 4	58
4.9	Summary of Hypotheses Testing Result for Hypothesis 5	60
4.10	Summary of Hypotheses Testing Result for Hypothesis 6	62
4.11	Summary of Hypotheses Testing Result for Hypothesis 7	63
4.12	Summary of Hypotheses Testing Result for Hypothesis 8	64

LIST OF TABLES (cont.)

Table		Page
4.13	Summary of Hypotheses Testing by crosstab analysis	66
4.14	Summary of Hypotheses Testing by one-way ANOVA analysis	67
4.15	Summary of Hypotheses Testing by one-way ANOVA analysis	67
4.16	Summary of Hypotheses Testing by one-way ANOVA analysis	69
4.17	Summary of Hypotheses Testing by one-way ANOVA analysis	70
4.18	Summary of Hypotheses Testing by one-way ANOVA analysis	71
4.19	Summary of Hypotheses Testing by one-way ANOVA analysis	72
4.20	Summary of Hypotheses Testing by T-Test analysis	74
4.21	Summary of Hypotheses Testing by T-Test analysis	75
4.22	Summery of mean score of the constructs	76

LIST OF FIGURE

Figure		Page
2.1	An overview of social media activities	18
2.2	A process of changing human behavior	20
2.3	Conceptual framework	25
5.1	Work instruction	86

CHAPTER I
INTRODUCTION

Health information plays a vital role in public health especially disease prevention strategy. With health information, patients are able to choose the optimal treatment, involve in decision making for their health and increase participation in disease prevention. Patients are able to manage their condition better. According to the information from Centers for Disease Control and Prevention (CDC), most health information is not shown in the way that is usable by adults. Nearly 9 in 10 adults find some a difficulty using health information that is usually available in healthcare facilities, media, etc. Lack of clear information and understanding of the important of information, people are more likely to omit necessary medical tests and have a difficult in managing chronic diseases. Effective health communication is one of the keys to help patients achieve health outcome. Healthcare professional is the main source of the information (Lemire, 2008). In order to access to health information from healthcare professional mainly in the hospital, patients have to go the hospital. It needs to spend time, money for travelling and waiting to see the doctor. A large number of patients visit the hospital each day increasing the workload for healthcare professional, it leads to insufficiency time to communicate to patient as expected. The patient may find it difficult to ask or discuss their concern when the doctor shortage of time. For these reasons, seeking health information from healthcare professional was limited by the access according to time and money. Patients search for health information from the other source to acquire the information they need (Konstantynowicz, 2016). When promoting disease prevention, the target group is not only in people with illness but also in healthy people. The communication on disease prevention have to be more proactive beyond hospital setting to reach more people. Media such as television, radio, prints can be source of health information. It can help to reach to many people. However, some media that reach to majority of the people is very expensive. People with low literacy may not clearly understand the message.

When receiving the information from media is mainly one-way communication which may not have an opportunity to ask if have any questions. Hence, there is a strong evidence that health information can improve health and wellness. Trust is the key factor for communication of health information. Increasing an access to reliable health information can increase wellness of the people in the community. Social media is one of the communication channel that is widely used. It is important to develop a platform of social media owing to diffuse critical health information.

1.1 Social Media

Social media has changed the way people connect or communicate to each other. The internet has been used wildly to connect people around the world regardless of time and distance. The information reach to the consumer faster. Web applications have been introduced which made the communication more easily and interactive. Social media is the online communication tools to engage people through the application that they use according to their interest. Social media usage has risen across age, education, race as people discover the opportunities to connect with each other. They can feel connected without having face to face interaction. People stay connected and engaged. The information is disseminated faster or even real-time. The use of social media is varies based on the purpose. It is used individually for connecting people, searching for the information and entertainment. In organizational level, it can use for internal and external communication, promote the products and services, maintain relationship with the customers. In government level, social media can a tool to interact and leverage relationships between governments and citizens. Developed countries use social media to enhance the transparency and gain trust.

Number of social media user in Thailand has increased dramatically. In 2016, there are 38 million active internet users and 38 million active social media accounts reaching to half of the population in Thailand (Wearesocial, 2016). Several social media platforms that are frequently used in Thailand such as Facebook, Twitter, etc. Social media functionalities and features facilitate the interaction among the users, increase connection and engage the user. Social media has a feature that can deliver to message to the users direct and indirect. The interaction between social media user can

leverage the message from social media and increase the accessibility of the information to the user.

Social media can be used as a tool for accessing to healthcare information. Concerning health, patients use social media to share their experiences, reach out for information and opinions, and engage with friends. Moreover, people can connect to the expert or the people who have the same interest through social media. People can conveniently access to the information, especially for busy people because it is available 24 hours per day. Social media plays an important role as the source of the information that can reach many people quickly (Levac, 2016). Social media is the effective tool to disseminate health information to diversity population. Healthcare organizations increasingly use social media to communicate health information in order to improve public wellness, which can use in many health's related topics.

1.2 Cervical Cancer

Several health problems are needed to pay attention. High mortality rate recently is from non-communicable disease. Many health organizations intensively focused on non-communicable disease problems such as cancer, diabetes. Large numbers of people were died from cancer and its cost of the treatment is high. One of the strategies is having prevention and controlling cancer plan. Most people perceive cancer as fetal disease and no prevention. Particular cancer can be prevented according to the cause of cancer. Many of the cancers related to infectious agents, such as human papillomavirus (HPV) and hepatitis B virus (HBV) could be prevented through behavioral changes, infection control procedures, vaccinations, or treatment of the infection.

Cervical cancer was the fourth most commonly cancer-related death worldwide in women in 2012 and was in the top five cancer-related death Thai female (GLOBOCAN, 2012). Several countries including in Europe and Central Asia found that most affected are younger women, this trend is reflected from changing sexual behaviors (American Cancer Society, 2015). The optimal prevention is to have immunization before exposure to the virus. Cervical cancer vaccine is known as the HPV vaccine which 70% of cases can be prevented from cervical cancer. The vaccine

is useful for the people who have never been infected with HPV virus before. In other words, it is useful for the people who have never had sexual intercourse, because HPV virus can infect easily by sexual intercourse. Therefore, the vaccine in children will give the maximum benefit as they have not been infected with the virus through sexual intercourse. In addition, children also have a higher response and higher immunity level. Public health in many countries recommends the HPV vaccine in both girls and boys aged 12 years (CDC, 2017).

HPV vaccine is defined as the vaccine protects against cancer caused by human papillomavirus (HPV) which is the most common sexually transmitted infection and the primary cause of cervical cancer. HPV prevention can potentially provide high value in managing care by providing benefits from life and cost saving. Currently the HPV vaccine has not included in Thai Universal Coverage Scheme. People who are interested in HPV vaccination have pay for the cost of treatment by themselves. Many people realize the benefit of vaccination but may not be aware of the important. The future the vaccine is expected to be given the children, it is also important to create the awareness to the parents to realize the benefit and risk of the vaccine in order to prevent their children from cervical cancer.

It is important to create or increase the awareness to the public to understand HPV vaccine roles in order to reduce the incidence of cervical cancer. In the past, communication channel between healthcare professionals and patients mostly are through face-to-face communication, promotion activities or media. Though face-to-face remains being the effective channel, limitations and resource need to take into account such as workload of healthcare professional, limited access and time for effective health communication. Communication through traditional media such as television, radio can reach many people but it is expensive and it is one-way communication.

From many studies show that people have HPV knowledge ranged from fair to good, but the number of vaccination is lower than the expectation from healthcare organization aspect. Healthcare professionals have the important role to create awareness of HPV vaccine to increase the vaccination rate resulting in reduce the number of HPV infection and cervical cancer incidence.

Social media has the important role to increase HPV vaccine awareness to public especially for parents. Parents have a role to make medical decision for children as they are presumed to have insufficient capacity to choose their own treatment. Parents have to communicate health information to their children to understand. It is important for the parent to have the knowledge, realize the important and accept the vaccine before communicating to their children.

1.3 Rational of the Study

Communication is the key to increase the awareness. Social media has been using in direct purposes such as connecting people, entertainment, and business purpose. However, for the use in healthcare to provide health information in order to achieve health outcome is not well-understood. Mortality rate of cervical cancer in Thailand remains high. The vaccine can prevent the infection which is one of the causes of cervical cancer. The study in Thailand regarding the knowledge and the acceptance of the vaccine among parents are fair, but does not promise the vaccination rate. Number of social media user in Thailand has increased substantially. Social media can be an alternative channel for health communicate to drive the awareness on the vaccination and its benefit. The cost is cheaper compared to the other channels. The study aims to understand the parents' perception of using social media to create HPV vaccine awareness to make a decision for their children's health in the future.

1.4 Statement of Problem

Although advances in screening, vaccination and treatment of cervical cancer, mortality rate from cervical cancer remains being the top health problem. It is important to create awareness to the public to understand the important of cervical cancer prevention including HPV vaccination in order to reduce the incidence of cervical cancer. The vaccine will give the most benefit when the user has not exposed to the virus. For this reason, children will get the most benefit from this vaccine. Communication is important to increase the awareness. Social media is widely used to connect and disseminate the information. The use of social media has been increasing.

Social can be the channel to disseminate the information to the public. Healthcare professional may consider using social media to communicate heath information to the public. The parents have responsibility to make decision for their child's health. Creating heath awareness should be made with the parents to understand the benefit and harm for the children. This research is conducted in order to understand social media roles as other channels for healthcare professional to communicate health information on HPV vaccine.

1.5 Research Objectives

1. To study roles of social media as a channel to create Human papillomavirus (HPV) vaccine awareness among parents of daughters aged 9 to 12 years in order to make a decision for vaccination.

2. To understand the parents' perception of information quality, accessibility and usefulness of social media, source of the information in order to create HPV vaccine awareness

3. To examine whether or not the parent's perception and behavior of using social media as source of receiving HPV vaccine information are different when segmented based on demographic characteristics

1.6 Research Questions

1. Is social media useful as a health communication platform?

2. Can social media be one of the communication tool for creating HPV vaccine awareness and making a decision?

3. Who can be the key driver for disseminating the information on social media in order to create the awareness?

1.7 Scope of the Study

This study examines perception and behavior in parents of daughter aged 9

to 12 years in Bangkok Metropolitan Region when receiving HPV vaccine information through social media.

1.8 Contribution of the Study

This study will help to healthcare professional to understand the parent perception and behavior of using social media as source of the information in order to provide useful information for developing the strategy to create health awareness through social media. Additionally, this research will help to understand the parents' social media use behavior to disseminate the information.

CHAPTER II
LITERATURE REVIEW

This chapter provides the overview of literature necessary to understand this research. It consists of related research of HPV vaccine awareness among parents and social media to create health awareness

Section 1: Health communication and primary prevention

Section 2: Social media

Section 3: HPV vaccine awareness in parent

Section 4: Social media in health communication

Section 5: Conceptual framework

Section 6: Research framework

2.1 Health Communication and Primary Prevention

Data from American Cancer Society, one in seven deaths is due to cancer in worldwide. In high-income countries, cancer is the second cause of death while in low and middle-income countries; cancer is the third leading cause of death. Various factors that contribute to geographic differences in cancer occurrence are the prevalence of risk factors, the availability and use of diagnostic tests, the availability and quality of treatment. In developing countries, infections associated with cancer are found more than developed countries. As a result, in 2012, two of the five leading cancers in men (liver and stomach) and women (cervix and stomach) in developing countries were related to infection. Costs of cancer is high include expenditures for treatment cost of care. The cost of cancer is expected to increase due to the number of new cases and cost of the cancer treatment. Several cancers could be prevented through avoid the risk factors, cancer screening. Many cancers related to infectious agents could be prevented through infection control, behavioral changes, vaccination,

etc (GLOBOCAN, 2012). This information in prevention is required to communicate to public to be aware and able to prevent themselves for the disease.

Definition from World Health Organization (WHO), primary prevention is one of the scope of disease prevention. Primary prevention activities include vaccination, providing information on behavioral and medical health risks and reducing risks at the individual and population levels. Primary prevention activities can be implemented independently and should be actively promoted. Disease prevention improves health and save money. Preventable cause of death, such as smoking, poor diet, providing influenza vaccine can decrease mortality rate (Cohen, 2008). Investing in prevention generates an efficiency in health care spending for example, vaccinations in childhood found having less cost that caring for children with infection. Vaccines are generally considered to be the health care intervention that provides the best value (Armstrong, 2007). Health prevention promotion required several partnerships and educational and social communication.

Health promotion including immunization program in primary school student requires support from many stakeholders to achieve the goals. Main stakeholders include, but are not limited to governments and health care professionals, parents, children and schools (WHO, 2012; Clelland, 2013).

1. Governments and health care professionals should increase awareness of the importance of immunization to improve a population's health and effectively convey messages on vaccines to create demand (WHO, 2012).

2. Schools have a role in educating and facilitating health communication between students and their parents. Children play a role in communicating information they learnt from school to their parents (Clelland, 2013).

3. Parents are responsible for health of their children, educating them on health topics, and ensuring home environment supports positive healthy behaviors. Parents considered role modelling healthy behaviors is a powerful way for promoting healthy behaviors (Clelland, 2013).

4. Children may not be able to make a decision for their health. Children as recipients of vaccination need to understand the risk and benefits of vaccines. Parents who are responsible for their children health have to communicate with children (WHO, 2012).

2.1.1 Health Communication

Health communication is aim to inform and influence individual and communities decision that enhance health (Freimuth, 2004). Health communication is related to every aspect of health and well-being, including disease prevention, health promotion and quality of life (Rimal, 2009). Health communication can raise awareness of health issues to drive policy or practice change. Effective communication can be a powerful tool for behavior change. It can provoke public discussion for promote disease diagnosis, treatment, or prevention. Source of health information can derive from health care professional and media, the doctor is the major source of the information (Thomas, 2010). Communication can improve relationship between health care providers and patients, compliance and outcome (Schiavo, 2007). The patient is usually willing to follow the recommendations from health care professionals they trust. It is important to get the patient participate to the treatment. Patient should be able to talk about their illness and having an opportunity to ask question. Healthcare professionals should answer with respect, providing the recommendation clearly based on the patient's concern (Martin, 2013). Several challenges of health communication in public are raised. First, it is difficult to find the methods or techniques to evaluation the communication tools or channels for its effectiveness and the outcome in order to modify the communication intervention to improve the outcome. Second, human behavior is complex and requires the cooperation from the variety of the expertise for effectively promoting behavior change. Lastly, audiences' technology use changing rapidly, the extra efforts are needed to meet the audiences for changing communication channels (Rimal, 2009).

2.1.2 Effective Health Communication

Effective health communication can help raise awareness of health; this can improve individual and public health. The important of health communication is helping the audience understand the key message to heal them to achieve better health outcome. The attributes that can create the effectiveness of health communication are accuracy, availability, balance, consistency, cultural competence, repetition, timeliness and understandability.

Table 2.1 Attributes of effective health communication

Attribute	Description
Accuracy	The content is valid and without errors of fact, interpretation, or judgment.
Evidence-based	Relevant scientific evidence that has undergone comprehensive review and rigorous analysis to formulate practice guidelines, performance measures, review criteria, and technology assessments for tele-health applications.
Reliability	The source of the content is credible, and the content itself is kept up to date.
Balance	The content presents the benefits and risks of potential actions or recognizes different and valid perspectives on the issue.
Consistency	The content remains internally consistent over time and also is consistent with information from other sources.
Timeliness	The content is provided when the audience is in need of the specific information.
Understandability	The reading or language level and format are appropriate for the specific audience.
Availability	The content is delivered or placed where the audience can access it.
Reach	The content gets to or is available to the largest possible number of people in the target population.
Cultural Competence	The design, implementation, and evaluation process that accounts for special issues for select population groups (for example, ethnic, racial, and linguistic) and also educational levels and disability.
Repetition	The delivery of access to the content is continued or repeated over time, both to reinforce the impact with a given audience and to reach new generations.

Source: Ritter (2011), Unites States Department of health and Human Services (2000)

These attributes are categorized into content, availability and accessibility. Most of the attributes describe important of creating message for an effective health communication to create health awareness. The information in the message has to be accuracy, reliability and come from the relevant scientific evidence and up to date. As the target group may contain of the diversity of people, the level of understanding message is varied, the message should be easy to understand by using the appropriate language to reach the largest of population. The information need to be balance between benefit and risk, which can help the audience to weight between benefits and risk before taking an action. The message need to be consistency over time otherwise it would reduce credibility and confuse the audience. The design of the message need to customize based on the target audience to get an attention. When disseminate the information to reach the largest of the target population, choosing the appropriate channel is important factor to make the communication effective. Lastly, timeliness and repetition, the content should be available when the audience needs it and the message should appear continuously for the audience to reach and reinforce the message for the action.

2.1.3 Health Awareness and Education

Creating health awareness helps individual realize the important of that disease and its impact to their life leading to the action. Having health awareness increases well-being of individual and public. Healthcare professional can increase health awareness through communication. (Flora, 1989)

Health education is any combination of learning experiences designed to help individuals and communities improve their health, by increasing their knowledge or influencing their attitudes. When planning the program for health education, several health behavior theories involved in order to help people to increase knowledge and change behaviors.

Social Ecological Model (SEM) is the model designed to promote health. It can be divided into institutional or organizational factors, community factors, and public policy factors. Health education mainly focuses on intrapersonal and interpersonal support. Environmental support will be broader in terms of regulation supports, which mostly focus in health promotion.

Intrapersonal capability concept is based on the assumption that increasing a person's knowledge causes behavior change. This concept attempts to modify individual characteristic that influence behavior, such as knowledge, attitudes, beliefs. Interpersonal supports consist of the role of a person within the person social context and influence the behavior. (WHO, 2012; Raingruber, 2014)

Table 2.2 Social Ecological Model

Concept	Definition
Intrapersonal capacity	Individual characteristics that influence behavior, such as knowledge, attitudes, beliefs and personality traits
Interpersonal supports	Interpersonal process and primary group, including family, friends and peers that provide social identity, support and role definition
Environmental contexts	
Institutional factors	Rules, regulations, policies and informal structures, which may constrain or promote recommended behavior
Community factors	Social networks and norms, or standards, which exist formally or informally among individuals, groups and organizations
Public policy	Local, state and federal policies and laws that regulate or support healthy actions and practices for disease prevention, early, control and management

Source: WHO 2012: Health education: theoretical concepts, effective strategies and core competencies

2.2 Social Media

Internet penetration in Thailand is 56% in 2016 (Wearesocial, 2016). Social media usage has become a daily activity for many people. The usage of social media is increasing globally. In Thailand 56% of the population has an active account on top social media, which is around 38 million active users. Mobile internet users are

45% of total population in Thailand. Average daily use of social media from any device is nearly 3 hours. Top active social platforms are Facebook, Instagram, Twitter, etc (Wearesocial, 2016). The use of social media is to seek for interact with other and seek for the information. The interaction among friends and the users on social media. Usage of social media can be benefit to provide health information to create the awareness.

Social media (e.g., Facebook, Twitter) refers to "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, which allows for the creation and exchange of user-generated content. Social media user can create content, share the information, expand the reach, access to the information that can increase connectivity and engagement with friends or communities. Social media has been used for many purposes such as sharing information, connecting with friends and collaborating with other users. The use of social media helps to expand the reach, access to the information and engage people. People can easily access to the information because the information is available 24 hours per day. This can make people exchange the information rapidly without time limited (Kaplan, 2010).

According to the research, the purposes of using social media are joining social networks, reading blogs, or contributing reviews to shopping sites. Growth of social media usage is not limited to teenagers; it is increasing in the others group of age. (Kaplan, 2010).

2.2.1 Social Media Type

Social media can be divided into six different types based on characteristic and social presence (Kaplan, 2010).

Table 2.3 Social media types

Type	Description
Collaborative projects	Collaborative projects enable the joint and simultaneous creation of content by many end-users. Example of collaborative projects is the online encyclopedia Wikipedia which allow the users who have an account to create or revise the content

Table 2.3 Social media types (Cont.)

Type	Description
Blogs	Blogs are personal web pages that usually display story in sequence and allow to interact with others through by providing the comments.
Content communities	Many types of media including text, photos, videos, PowerPoint presentation are in content communities. The main objective of content communities is to share the content between the users. The reviewer is not required to create a personal profile. Example of content communities is YouTube.
Social networking sites	Social networking sites are applications that users can connect to others by creating personal information profiles, inviting friends to have access to those profiles, and sending instant messages between each other. These personal profiles can include any type of information, including photos, video and audio files. Example of social networking sites is Facebook.
Virtual game worlds	Virtual worlds are platforms that users can appear in the form of personalized avatars and interact with each other as they would in real life. Example of virtual game worlds include World of Warcraft.
Virtual social worlds	The second group of virtual worlds allows users to choose their behavior more freely and essentially live a virtual life similar to their real life. The example of virtual social worlds is the Second Life application.

Each social media platform has different characteristic for create the content. Choosing the platform that is effective for health communication based on the content and target population.

2.2.2 Social Media Function

From Kietzmann (2011) presented main function of social media platform can classify as seven functional building block.

Table 2.4 Function of social media platform

Functionality	Description
Identity	It is the functional block for the user to reveal their identities such as name, age, gender, profession, etc. Many social media platforms require users to set up profiles.
Sharing	Sharing is the function for the users to exchange, distribute and received the content. Sharing leads to interaction and building the relationship.
Presence	This building block will let the users know if the others are available, where are they in the real world. The user can 'Check in" at the particular place, the other can see this information and know where you are.
Relationships	The relationships building block represents the extent to which users relate to other users. For example, LinkedIn allows the users to see for they are related to other. The importance of different relationship traits. The high level in their network of relationships showed that the user likely is to be an influencer.
Reputation	The reputation building block represents the extent to which users can identify the standing of the others in social media setting. It is about trust. The reputation is not only about people but also the content of the user.
Groups	Groups is the extent to which users can form communities. It becomes the bigger group of friends, follows, and contacts. The user mange the group which creates, approves the applicants and invite the other to join.

The functional blocks of social media help to understand the activities on social media and means that social media can engage the users.

Additionally, there are the features in social media to engage the users and disseminate the information among the users. The main features are summarized below: (Ventola, 2014)

Table 2.5 Features in social media

Feature	Description
Following	This feature allows user to follow other user and other user to follow this user. The user can follow any user as long as the user is public.
Mentions	It allows the user to mention to talk to each other by type @ symbol before the username.
Share/Retweet	User can share/retweet the post of the user to their own friend.
Hashtag	Hashtag function allows the user can label their discussion by using # symbol before typing the keyword. It is used to mark keywords or topics.
Direct message	Two users who follow each other can send the private message to each other.
Verification Accounts	It helps the celebrities and business to get their account verified.

2.2.3 Activity in Social Media

Consumer are involved the activities in social media depending on the motivation ranging from consuming the content, participating in discussion, sharing knowledge with other. The consumers mostly consume the content and only a few contribute or produce their own content. It found that the consumers who create their own content play an important role in conveying experiences and peer-to-peer support by sharing the experience and knowledge. This seemed to be as a guide and direct the decision making to the others. The activities can be divided on to three categories based on consumer input and motives; information processing, entertainment activities, and social connection.

Figure 2.1 An overview of social media activities

Source: Heinonen (2011)

Information processing involved in acquiring information, sharing information, accessing shared knowledge and using the knowledge for their own benefits. The information on social media is valued for several reasons; accessibility, being real-time, contained various viewpoint. Entertainment activities involved in escaping the real world and relaxing, looking for inspiration and encouragement, enjoying oneself online and self-expression. Social connection activities are mainly related to social surveillance; user are interested in seeing what is happening in their friends' network. It also involved the activities in sharing and experiencing with others, connecting with people, being up-to-date, keeping up relationships within network, creating and managing a social network (Heinonen, 2011).

2.3 HPV Vaccine Awareness in Parents

Cervical cancer is the fourth most common cancer among women worldwide in 2012, with an estimated 527,600 new cases and 265,672 deaths worldwide (GLOBOCAN, 2012). Thailand has a female population of 29 million ages 15 years and older who are at risk for cervical cancer. An estimated 8,184 new cervical

cancer cases are diagnosed annually in Thailand and 4513 die from the disease. Cervical cancer is the second most common female cancer in women aged 15 to 44 years and leading cause of female cancer in Thailand.

There two types of policies on cervical cancer prevention in Thailand which are prevention are primary prevention, is to prevention from HPV infection, and secondary prevention is to detecting precancerous lesions that can be treated so they do not progress to cancer. HPV vaccine is one of the strategy from primary prevention. The prevention from the virus infection requires communication to raise the awareness to the public and the target population to protect themselves from infection. This could help decreasing the incidence and the mortality rate of cervical cancer.

Vaccination prevents an infection and reduce an incidence of the cervical cancer. Reductions in morbidity and mortality from the vaccine has an impact to the economic as it saves money and hidden cost from sickness. Low- and middle-income countries have 85% of cervical cancer deaths. These countries can get a benefit from HPV vaccine. HPV vaccine give the maximum benefit for people who have never been infected with human papillomavirus. As this virus is sexual transmitted, people who have never had sexual intercourse would get the most benefit from this vaccine.

The Centers for Disease Control and Prevention (CDC) recommends that all girls and boys complete the vaccine series at age 11-12 as part of their routine vaccination schedule. Parents are the decision maker regarding receiving the HPV vaccine for the children in these ages as children are not able to make complex decisions for themselves. As children develop the capacity to make decisions for themselves, they have an opportunity to speak up about issues and decisions that affect them. Most children and adolescents lack full capacity to make complex medical decisions, however, and final authority to make medical decisions usually remain with their parents. Parents are suitable representative than most others to understand the needs of their child and to make decisions that are in the best interests of the child (Diekema, 2014). Parents are the decision maker regarding receiving the HPV vaccine for the children.

The communication for vaccination has been conducted. However, the public health remains working to engage families in immunization. A lack of knowledge about the threat of vaccine-preventable diseases, risks and benefits of vaccines, mistrust of government and health workers, poor service delivery and alternative health or religious beliefs play a role in lower uptake of some vaccines. These challenges underscore the importance of early integration and investment in a thoughtful communication plan for immunization programs (WHO, 2013).

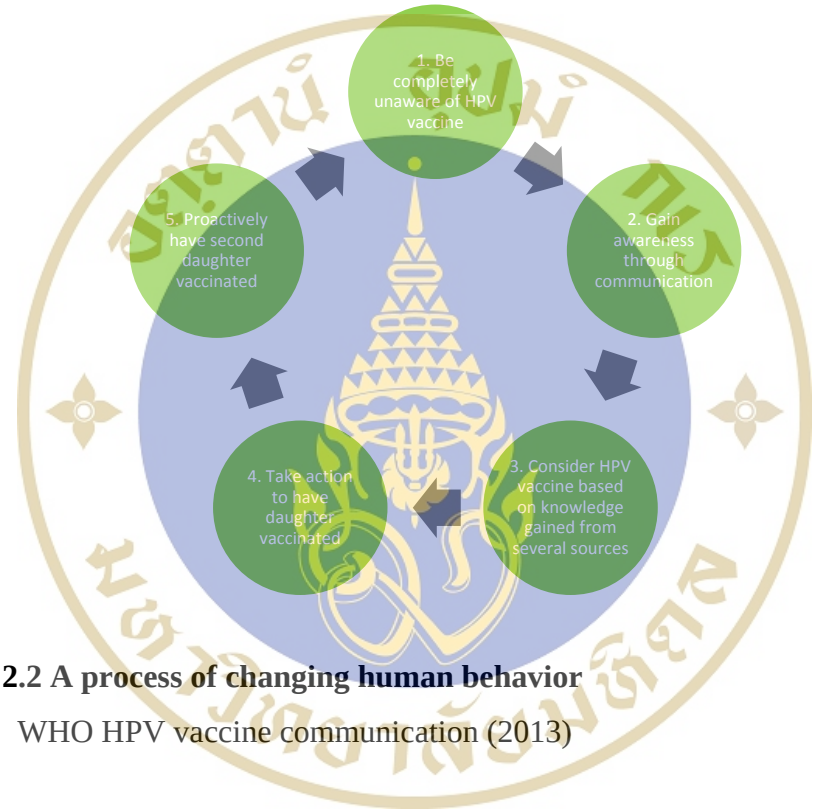

Figure 2.2 A process of changing human behavior

Source: WHO HPV vaccine communication (2013)

Many factors are involved in the success of HPV vaccination including the perception of threat of HPV and cervical cancer, the degree of trusts the vaccine, the message and source of the information, friend and family (WHO, 2013). Communication can increase an awareness and understand the benefit of the vaccine for the parent for making a decision.

HPV vaccine seems to have high efficacy and an excellent safety profile, rates of the vaccination remain low compared to other routinely recommended vaccines for the same age group. In the United States, despite national guidelines for the routine administration of HPV vaccine to 11- and 12-year-old adolescents, only

40% of girls and 22% of boys completed the 3-dose series in 2014 (Gable, 2016). Study from Gilkey, 2016 is conducted to systematic review to study the effective of provider communication about HPV vaccination. The main factors to study are constructs of source, audience, message, channel, and context. Regarding channel, few studies are assessed HPV vaccination communication beyond provider dialog. In traditional primary care settings, brochures and fact sheets and posters are commonly used to support provider communication about HPV vaccination. In studies examining preferred materials, both parents and providers favored brief written materials, with parents additionally expressing interest in websites. Parents and providers across several studies would like to have educational materials that are tailored to their cultural background, language preference, and literacy level. Given concerns about literacy, some providers suggested video as a promising educational channel, but only a minority of parents viewed informational videos as helpful.

The study of the acceptability of HPV vaccine among students, parents and teachers in secondary schools in Bangkok in Thailand, knowledge and attitudes regarding the importance of the HPV vaccine were fair particularly among parents and teachers. Greater effort may be needed to educate people regarding the cost and benefits of HPV vaccination; it would be more acceptable to parents, teachers and students in Thailand (Songthap, 2012). Another research on factors are associated with parental acceptance of HPV vaccines shown that increasing the knowledge has little effect on the acceptability of the vaccine by parents for their children. Attitudes and life experiences seem to be more important influencing HPV vaccine acceptability among parents (Dempsey, 2006). Olshen et al. (2005) explored parental views on HPV vaccine, some parents did not how to explain the vaccine to their children and worried that giving the vaccine to their children would encourage unsafety sexual activity. Additional, receiving the recommendation from physician will affect parental vaccine acceptance.

2.4 Social Media in Health Communication

Several studies are conducted to evaluate the use of social media for health communication for an awareness and behavior change.

Table 2.6 Studies of social media related to health communication

Author, Year (website used)	Participants	Objective	Application of social media networking sites	Evaluation means	Future research
Greene, 2010 (Facebook)	480 users from 15 Facebook groups on diabetes management	Evaluate the content of communication in Facebook communities dedicated to diabetes	Facebook provides a forum for reporting personal experiences, asking questions, and receiving direct feedback for people living with diabetes	Data analysis by reviewing the posts on Facebook	Trustworthiness of the information and identity promotional materials used online social networking
Uittenhout, 2012 (Facebook, Twitter)	150 parents of a child in primary school	Evaluate an effective channel to communicate head lice prevention	Evaluate an effective channel to communicate head lice prevention	5-point Likert scaled questionnaire and telephone interviews	Create “lifestyle” channels based on age and social media channels for health professionals to share knowledge and ideas
Antheunis, 2013 (Facebook, Hyves, Twitter, LinkedIn, and YouTube)	139 patients and 153 health professionals in obstetrics and gynecology in Netherlands	Motives, barriers and expectations use of social media in health care in patients and health professionals	Indicate patients’ and professionals’ motives barriers and expectations use of social media in health care	Online survey using questionnaire	(1) the use in other specialties (2) the change health professionals’ attitudes toward social media usage (3) impact of social media usage on the patient and professional relationship

Table 2.6 Studies of social media related to health communication (Cont.)

Author, Year	Participants	Objective	Application of social media networking sites	Evaluation means	Future research
Moorhead, 2013 (Facebook, blogs, Twitter, and YouTube, etc.)	98 original research studies using 10 electronic databases	Identify current gaps of uses, benefits, and limitations of social media for health communication among the general public, patients, and health professionals	Using social media provides some benefits for health communication, the information needs to be monitored for quality and reliability, and the users' confidentiality and privacy need to be maintained	Systematics literature review	(1) impact of social media for health communication in specific population groups (2) the longer-term impact on the effectiveness of social media (3) impact of peer-to-peer support for the general public, patients, and health professionals (4) the impact of social media on health behavior change
Ramanadhan, 2013 (Facebook, Twitter and YouTube)	166 organizations from Boston, Lawrence and Worcester	Assess presence and patterns of usage of CBOs engaged in health promotion ; average distribution of content	Use of social media tools is a flow of information from the organization to the audience. The organization had better leverage the interaction and user engagement	Data analysis (quantitative method)	(1) the relationships between organizational characteristics and social media use (motivations and perspectives of CBO leaders and staff) (2) the needs and preferences of the intended target audience

Table 2.6 Studies of social media related to health communication (Cont.)

Author, Year	Participants	Objective	Application of social media networking sites	Evaluation means	Future research
Lapointe, 2014 (Facebook, Twitter, Youtube, Blog, LinkedIn, etc.)	Case analysis; six organizations related to cancer prevention Interviews in two organizations	Role of social media in creating cancer awareness how individuals and organizations use social media to collaborate to promote such awareness	Social media is used to create an online community that helps to create cancer awareness. Social can help healthcare organizations to promote health awareness	Literature review using multiple case study design, which includes qualitative analysis of documentation, website analysis, and interviews	Explore the mechanism and impact of these social media enabled collaborations, an understanding of which is essential for creating cancer awareness.
Hudnut-Beumler, 2016 (Facebook, Myspace, websites, Twitter, etc.)	27 articles were published in 2012 or later	Social media use in health interventions aimed at Hispanic populations	Social media can drive intervention for affecting health behavior change in Hispanic population	Systematics literature review	Test the effectiveness of social media in health education programs and interventions for behavior change in Hispanic populations
Xu, 2016 (Twitter)	Collected Tweets frim April 1, 2014 through January 21, 2015	Examine the frequency of discussion and differences by race and ethnicity of cancer-related topics	Social media can be a powerful and important tool to promote public health	Data analysis by reviewing Tweets	Identify trends within groups of users, and target group-specific health education literature by learning users' characteristics through language differences.

2.5 Conceptual Framework

Social media can be used as the source of health information in order to create health awareness on HPV vaccination in parents. Relevant concepts are shown below.

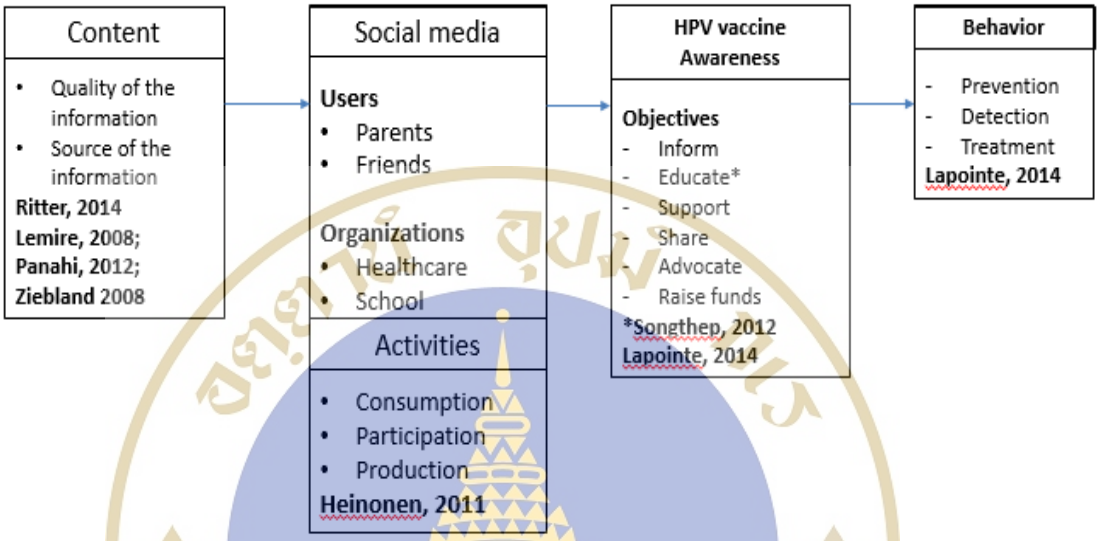

Figure 2.3 Conceptual framework

The elements involve in creating HPV vaccine awareness which be divided into an effect of the content in social media, effect of social media platform to disseminate the information, social media users. Use social media as a source of the information is required trust of the information from the parents. The quality of the information improves trust of the information in social media. Reliable source or reference of the information can also gain trust from parents Social media platform itself can help to access, disseminate the information and engage the parents to increase an awareness. Social media functionalities increase an access to the information and activities in social media can disseminate the information to others extensively. Several stakeholders are involved with HPV vaccine awareness such as healthcare providers and school. People in the social context such friend can influence the behavior of the users.

2.6 Research Framework

This research aims to evaluate that parent perception of social media as the source of the information to create awareness on HPV vaccine. Secondly, it aims to understand the parents' behaviors to disseminate the information on social media. This research proposed 8 factors the determines the use social media for creating HPV vaccine awareness in parents. The factor consists of perceived quality of the information, perceived accessibility of social media, perceived usefulness, parents' behavior to disseminate the information, social influence, content on experience, social media effects decision and source of the information effects decision.

2.6.1 Perceived Quality of the Information

The quality of the information is the important factor to consider social media as source of the information. Reliability of the information usually is the main concern when receiving the information from social media. The characteristics of quality of the information are reliability, accuracy, timeliness, understandability of the information. Additional attributes of the content for effective health communication are balance and consistency of the information (Ritter, 2011).

The quality of the information including reliability is one of the concerns when using social media for health communicate. Perception of the quality of the information on social media can be one of the factors that helps the parents to accept the information to create the awareness from this channel. Hence, it is hypothesized that:

H1. Positive perception of the quality of the information on social media has an effect on use social media for HPV vaccine information to create awareness

2.6.2 Perceived Accessibility

Social media is the electronic communication tools found to reach to the population. People can access to the information regardless of the age, level of education, race, and income. The content on social media will be available where the audience can access it. People can trade the information rapidly. The accessibility can be the motivation to use social media for health information (Levac, 2016). Additional, it repeated over time in order to create the awareness. The components of accessibility

are availability, repetition, and culture competence; these are the characteristics of effective health communication (Ritter, 2011).

Perception of accessibility is one of the factors to determine that social media can another be channel to help parents access to the information and receive the information continuously. Hence, it is hypothesized that:

H2. Positive perception of social media accessibility has an effect on use social media for HPV vaccine information to create awareness

2.6.3 Perceived Usefulness

Functionalities and features on social media facilitate the use of social media to receive, disseminate or find the information. Perceived usefulness is in TAM model defined as the degree to which a person believes that using a system would enhance his or her job performance (Davis, 1989). One of the factors to determine internet as a preferred source of health information is perceived usefulness of the site (Lemire, 2008). The features on social media can facilitate the users to receive and ask for the information from the expert. Social media can be the support group to gather the people with same interest. This will help the users to connect the people with same interest and be able to support each other for the information. Social media allow the user to generate the content; the user can to share the experience with other through this channel. Lastly, social media facilitate the user to share, exchange and search for information.

Regarding receiving the information on social media to create the awareness, this factor uses to determine the parent perception of social media usefulness. When the parents believe that social media can facilitate the use of social media to receive and disseminate the information the parents tend to use it. Hence, it is hypothesized that:

H3. Positive perception of social media usefulness has an effect on use social media for HPV vaccine information to create awareness

2.6.4 User Behaviors on Social Media

Behavior of the users on social media when receiving HPV vaccine information. The activities are based on the user input and user motives. Apart from

consuming content, the parents can participate in sharing, exchanging the information including experience, providing an opinion. The user can only consume the content, but does not write nor share the content (Heinonen, 2011). However, it is possible that when receiving the information social, the user may choose the other channel to share the information (Mangold, 2009).

Parents' behaviors when using media, how they participate the conversation or sharing the information in order to disseminate to the other. Additionally, it will have to understand the impact of parents' behavior for creating HPV vaccine awareness. Hence, it is hypothesized that:

H4. Positive user behavior on social media has an effect on disseminating HPV vaccine information to create awareness

2.6.5 Social Influence

Social influence is defined as change in an individual's thoughts, feelings, attitudes, or behaviors that results from interaction with another individual or a group (Rashotte, 2009). Peer-to-peer communication can influence health behavior and health, for example, through information sharing, emotional support. Friends share useful health-related information which written in the common terms. Individuals also seek information from family and friend they trust (Ancker, 2009). There are studies reported that friends and family are one of the health information sources of the patients (Fox 2011b, Rutten 2005; Sleath, 2003). Friend can be informal source of the information (Thomas, 2010). Friends can support the parents by giving the information. The information from close contacts may seem more positive (Levac, 2016). Friend can gain the attention, helping the access the information easier. It will help to receive up-to-date information. Based on the limitation of social media, the reliability is one of the concern. This study will evaluate the information from friend. Whether it will increase the perception on reliability of the information when receiving from friend. As the social media allow the users to generate the content, friend may use the language that help to better understand the information.

For this study, social influence is one of the factors to identify role of friend affects receiving HPV vaccine information in parents through social media

whether it will increase the access and receive information with quality in terms of reliability and understandability. Hence, it is hypothesized that:

H5. Positive perception of friend influence on social media has an effect on use social media for HPV vaccine information to create awareness

2.6.6 Content on Experience

Practical experience is considered as one the crucial knowledge acquisition process. Sharing personal experience is considered as one of the powerful way of transferring the knowledge (Panahi, 2012). Social media is one of the channels to share the practical experience which provides personal perspectives on treatment or the intervention. Social media provides opportunities for the user to observe and follow the best practice (Greene, 2010). Moreover, immunization is recommended, benefits and associated risk of the vaccine should be provided to the recipient (Aston, 2001).

Sharing experience of HPV vaccine on social media, the real user can share the benefit and harm of the vaccine based on the experience. It helps parents to be aware of it and receive the information for the vaccine when the real user generates the content. Hence, it is hypothesized that:

H6. Positive perception of experience content on social media has an effect on use social media for HPV vaccine information to create awareness

2.6.7 Social Media Effect on Decision

Media is one of the part that shape individual decision, Mass media may raise awareness of health issue, contribute to changing in which people make decision on their health (Brown, 2002). In healthcare, typically patient will make a decision for their health. Decision make also can be health plan representative or a family member. There are several stages in consumer's decision process. The first step is problem recognition; it is the step that the consumer recognizes a problem or need. Next step will information search; the consumer is interested enough to search for more information (Thomas, 2010). The emphasis on information such as effectiveness, risk, cost can drive health decision making (Detels, 2015). Social media facilitates and

encourages sharing, generating the information which can play an important role in health decision-making (Graham, 2016).

There are many factor for health decision making, social media can raise awareness to the parents for problem recognition and search of more information on social media which will part of the decision making process. Hence, it is hypothesized that:

H7. Positive perception of receiving the information from social media has an effect on decision making for HPV vaccination

2.6.8 Source of Information on Social Media and Decision

As the information will be part of decision making on health, health consumer can access to source of information on health from healthcare professional such as physician, nurse, pharmacists, etc (Thomas, 2010). Perception of trust in information available and opinions of physicians and other health professionals are the factors to use the information on internet as preferred source (Lemire, 2008). The health consumer's reliable source of the information is healthcare profession (Burns, 2013). Print and electronic media can be source of the information. Currently internet has become an available source of health (Thomas, 2010). Social media can provide the information related health but quality of the information is one of the concern (Moorhead, 2013).

This factor evaluates the source of the information when receiving from social media whether it affects parents' decision for the children vaccination. The source of the information can be reliable source from scientific based, the information from healthcare profession, the content that provide reference for the information, case study or real user experience. Hence, it is hypothesized that:

H8. Positive perception of source of the information from social media has an effect on decision making for HPV vaccination

2.6.9 Difference of Demographic Characteristics

Demographic most likely to seek health information online are women, non-hipanic whites, younger adults, and people with higher level of education and income (Fox, 2011a) which is similar to study from Smith, 2011 reported that younger

adults with higher education and income are likely to use and trust the internet for health information. While younger adults with less education and income are likely to trust family and friend for health information. Additionally, social media use is different among the age group. The usage of social media is people age 20-29 years old is higher than the other groups of age. Hence, it is hypothesized that:

H9. Difference of parents' demographic characteristics has an effect on use social media for HPV vaccine information to create awareness

CHAPTER III
RESEARCH METHODOLOGY

This chapter presents research methodology used in this study. The aim of this chapter is to describe data collection of this research which can be divided into 8 sections; research design, population and sample selection, data collection process, questionnaire design, validity and reliability test of questionnaire, pilot test, data collection and data analysis.

3.1 Research Design

Quantitative research methodology is defined as the collection of numerical data in order to explain, predict phenomena of interest (Gay, 2000). Creswell (1994) defines as an inquiry into a social or human problem, based on testing a theory composed of variables, measured with numbers, and analyzed with statistical procedures, in order to determine whether the predictive generalizations of the theory are true. The most important part of quantitative studies to explain a particular phenomenon is to use the right data analysis tools, the right research design and data collection instruments.

Quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to describe specific phenomenon. Designs of quantitative research are either descriptive or experimental. A descriptive study establishes only associations an independent variable and a dependent variable within a population (Babbie, 2010; Daniel, 2010).

Survey research is a method of collecting information by asking questions through oral interviews or self-administered questionnaires, or the combination of

these two methods can be conducted (Siniscalco, 2005). Survey research implies the use of some form of questionnaire to be administered to a sample of respondents; the questionnaire is one instrument that can be used to collect data from individuals to answer the research problem (Siniscalco, 2005). Questionnaire is a set of designed questions given exactly the same form to a group of people in order to collect data in which the researcher is interested (Jupp, 2006). After identify objective of the research, population and sample are identified to collect the data. Next step is to choose the method and when to collects the data. After determining the sampling plan, next step is to develop the questionnaire and run a pilot survey. Using the result from pilot test to improve the questionnaire and carry out the main survey to collect the data. After completing the collection process, preparing the data and analyze the data based on the research questions.

Regarding to the chapter 2, social media is used in health communication to disseminate health information, influence people to make safer and healthier decisions and promote behavior change. Health organizations such as Centers for Disease Control and Prevention (CDC) use social media for health communication at the organizational level. Disease prevention requires an afford to the public to be aware. Several studies have been conducted to understand the use of social media for health communication. There are several studies regarding role of social media in creating cancer awareness. Social media is used to create an online community that drives the creation of cancer awareness in many different ways and for multiple purposes. For example, Breast Cancer Society of Canada, social media can increase awareness about organization, reach to larger audiences (Lapointe, 2014).

Rates of HPV vaccination are low compared to the other routinely recommended vaccines for adolescent. Several qualitative and quantitative studies have been conducted to study the effective of provider communication about HPV vaccination and evaluate parents' decision-making in order to understand the low rates of HPV vaccination (Gable, 2016). Several communication strategies are recommended by health organizations; social media is one of the communication channels for HPV vaccine information communication. Social media use in Thailand increase dramatically. However, the use of social media is not well-known in Thailand as a health communication channel.

This study employs survey research method which is aim to explore perception of social media to create HPV vaccine awareness in parents of girls age between 9 and 12 years for creating an HPV vaccine awareness. Survey method for collection data through self-administered questionnaire is used.

3.2 Population and Sample Selection

3.2.1 Population

The recipients of HPV vaccine get the most benefit from the vaccine since they have not been exposed to the virus. Children also have a higher response and higher immunity level. HPV vaccine is recommended in girls aged 9 to 12 years in many countries. As children are not able to make a decision for their health. The parents are responsible for health decision for their children, this research conducts in parents who have daughter aged between 9 and 12 years. The sample size is calculated based on the number of girls aged 9 to 12 years in Thailand.

3.2.2 Sample Characteristics

Parents who have daughter aged between 9 to 12 years or in primary school grade 4 to 6 are recruited. This study collects the data from the participants in Bangkok and Bangkok Metropolitan Region where infrastructure is allowed to access to the information through internet, this group can be the representative of the population in this study.

3.2.3 Sample Size

The Taro Yamane's simplified formula is used to determine the sample size for this research. The total number of girls aged 9 to 12 years in Thailand in 2014 is 1.5 million approximately is used as a population with 95% confidence level (National Statistical Office Ministry of Information and Communication Technology, 2014). The estimated sample size is determined by using Yamane's formula (Yamane, 1973).

$$n = \frac{N}{1 + N(e)^2}$$

When: n = sample size,

N = population, and

e = error of the sampling.

Thus, the sample size for this study can be calculated as follow:

n = 1,500,0000 / 1 + ((1,500,0000) (0.05)2)

= 400

As a result, the sample size of 400 respondents is used in this research. Data collection is conducted through online survey and paper-based questionnaire.

3.2.4 Sample Selection

Snowball sampling is used to find participants from online survey. Stratified sampling is used to select the sample from primary schools for data collection. Opportunity sampling is used when distributing online and paper-based questionnaire at the tutorial schools

3.3 Data Collection Process

The sampling techniques of this study are snowball sampling, stratified sampling, opportunity sampling. The target group is specific group using snowball sampling can help the researcher to collect the data from the target population. Snowball Sampling is a technique for finding research subjects (Vogt, 1999). It is as a non-probability sampling method for obtaining respondents where they are few in number or where some degree of trust is required before contacting the respondents. Chain referral technique may imbue the researcher with characteristics associated with being an insider or group member and this can assist entry to settings where conventional approaches find difficult to succeed (Atkinson, 2001). Stratified sampling is a probability sampling method and a form of random sampling in which the population is divided into two or more groups according to one or more common attributes. Opportunity sampling is the sampling technique that taking the sample from

people who are available at the time when the study is carried out and fit the criteria for recruitment.

Snowball sampling is used for online survey. The respondent who have a daughter has been asked to forward or recommend this questionnaire to the other parents that they know to participate in this research. This helps the researcher to obtain the respondents through online. The respondents would be more convenience and comfortable to answer to questionnaire when using online survey. Second, paper-based questionnaire is distributed to the target parents through schools. The permission was requested to the headmaster of the school for distribute to the parents in girl students grade 4 to 6. When the permission is granted, the teachers help to distribute the questionnaire to the parents through their daughter. The completed questionnaire is collected by the teacher and handed to the researcher.

3.4 Questionnaire Design

The questionnaire has been developed based on the research questions. Thai language is used for the convenience of the respondents. Data is collected using self-administered online survey and paper-based questionnaire. The questionnaire consists of 3 sections: (See appendix A and B)

Section 1: Demographics profile

Section 2: HPV vaccine background

Section 3: Role of social media to create HPV vaccine awareness

The check-list scale is used in section 1 and 2 and rating scale questions in section 3. A 5-level Likert scale (Cavana, 2001) with answers ranging from 1 (strongly disagree) to 5 (strongly agree) is used to assess the level of agreement for role of social media to create HPV vaccine awareness.

The transition of the level ranking us analyzed by criteria of the user perceptions (Best, 1977)

$$\text{The interval score of each level} = \frac{\text{Maximum score} - \text{Minimum score}}{\text{The amount of level}}$$

$$= \frac{5-1}{3}$$

$$= 1.33$$

The results are calculated from mean scores and group into three classes:

The score among 1.00 – 2.33 mean disagree

The score among 2.34 - 3.67 mean neutral

The score among 3.68 - 5 mean agree.

The level of agreement is measured by using the 5-level Likert scale. The items of each construct are shown in tables below.

Table 3.1 Component of perceived quality of the information

Perceived quality of the information is defined as the importance of the characteristics of the content in the information. The characteristics are reliability, accuracy, timeliness, understandability of the information (DeLone, 1992). United states Department of Health and Human Service specified the several attributes that influence the effectiveness of health communication included balance and consistency of the information (Ritter, 2011).

Variable	Description	Question
Quality of the information	The degree to which a person perceives that social media provide accuracy, reliable and scientific based information.	1.1 you think that social media helps you receive valid, reliable information and supported by scientific evidence.
	The degree to which a person perceives that social media provide balance information.	1.2 you think that social media helps you receive information on benefits and risks
	The degree to which a person perceives that social media provide consistency information.	1.3 you think that the information on social media is consistent over time
	The degree to which a person perceives that the language used in social media	1.4 you think that the language used on social media is easy to understand
	The degree to which a person perceives that social media provide up-to-date information.	1.5 Social media helps you receive up-to-date information

Source: DeLone (1992), Ritter (2011)

Table 3.2 Component of perceived accessibility

Perceived accessibility is defined as be accessible for the user and available at all times. (Yang, 2005; United states Department of Health and Human Service, 2000) WHO specifies the several attributes that influence the effectiveness of health communication in terms of accessibility which are availability and reach, cultural competence and repetition.

Variable	Description	Question
Accessibility	The degree to which a person perceives how easy to access to the information on social media	2.1 you can access to the information on social media anytime
	The degree to which a person perceives that social media provides the information repeatedly	2.2 social media helps you receive the information continuously
	The degree to which a person perceives that everyone can access to the information	2.3 everyone (regardless of education and income) can access to the information on social media

Source: Ritter (2011)

Table 3.3 Component of perceived usefulness

Perceived usefulness is defined as the extent to which a person believes that using a system would enhance job performance and effectiveness (Davis, 1989). This refers to the usefulness of social media for the user to receive or disseminate the information.

Variable	Description	Question
Usefulness	The degree to which a person perceives that social media helps find the expert and receive the information	3.1 you think that social media helps you receive and ask the expert convenience

Table 3.3 Component of perceived usefulness (Cont.)

Variable	Description	Question
	The degree to which a person perceives that social media helps find the group to support	3.2 you think that social media helps you reach to the group of people with same interest
	The degree to which a person perceives that social media helps receive the other experiences	3.3 you think that social media helps you receive the other experiences
	The degree to which a person perceives that social media facilitates sharing the information	3.4 you think that social media feature helps you share the information with other easy
	The degree to which a person perceives that social media facilitates exchanging the information	3.5 you think that social media feature helps you exchange the information with other easy
	The degree to which a person perceives that social media facilitates searching the information	3.6 you think that social media helps you search for the information easy

Source: Lemire (2008)

Table 3.4 Component of behavior when receiving the information

Behavior is defined as behavior of the user when receiving the information on social media. The user can disseminate the information, provide the opinion or share their experiences on social media.

Variable	Description	Question
Behavior on social media	The degree to which a person is willing to share the information on social media	4.1 you will share that information through social media
	The degree to which a person is willing to share the information	4.2 you will share that information through other

Table 3.4 Component of behavior when receiving the information (Cont.)

Variable	Description	Question
	through other channels	channels (e.g. talking)
	The degree to which a person is willing to provide an opinion	4.3 you will provide your opinion on the post
	The degree to which a person is willing to express the support on social media	4.4 you will express your support (e.g. clicking like or following the page)
	The degree to which a person is willing to share the experience on social media	4.5 you will share you experience (if have) through social media Note: for male, please refer to your wife

Source: Heinonen (2011), Arndt (1967)

Table 3.5 Component of social influence

Social influence is defined as change in the parents' thoughts, feeling, attitude, or behaviors that result from interaction with another individual or a group (Rashotte, 2009). This study focuses on friends from social media. Peer-to-peer communication can influence health behavior and health, for example, through information sharing, emotional support. Friends share useful health-related information which written in the common terms. Individuals also seek information from family and friend they trust (Ancker, 2009)

Variable	Description	Question
Social influence	The degree to which a person perceives that friend helps get an attention to the information	5.1 you think that you are interested the information more when it shared by your friend on social media
	The degree to which a person perceives that friend helps access to the information	5.2 you think that your friend helps you access to the information easier

Table 3.5 Component of social influence (Cont.)

Variable	Description	Question
	The degree to which a person perceives that friend helps receive up-to-date information	5.3 you think that you will receive up-to-date information when shared by your friend on social media
	The degree to which a person perceives that friend provides reliable information	5.4 you think that your friend helps you receive valid and reliable information
	The degree to which a person perceives that friend helps the person understand the information	5.5 you think that your friend helps you understand the information easy

Source: Ancker (2009), Lefebvre (2013)

Table 3.6 Component of content on experience

This component is the type of content sharing regarding the experience of the content owner through social media in order to create awareness.

Variable	Description	Question
Content on experience	The degree to which a person perceives that social media provides balance information	6.1 you think that the experiences from the others or your friend shared on social media helps you receive benefits and risks of the vaccine
	The degree to which a person perceives that social media helps receive experience from the others	6.2 you think that sharing the experience on social media helps you receive the vaccine information

Source: Greene (2010)

Table 3.7 Component of social media influence decision

This component is regarding receiving the information on social media that can influence decision for the vaccination.

Variable	Description	Question
Social media influence decision	The degree to which a person perceives that the information on social media affects the decision-making	7.1 you think that receiving the vaccine information through social media affects the decision for the vaccination
	The degree to which a person perceives that exchanging information on social media affects the decision-making	7.2 you think that exchanging the vaccine information through social media affects the decision for the vaccination

Source: Graham (2016)

Table 3.8 Component of source of the information on social media effects decision

This component is regarding the origin of the information that can come from anywhere. It shows that the trust of source of the information from social media affects parents' decisions for vaccination.

Variable	Description	Question
Source of the information on social media effects decision	The degree to which a person perceives that receiving the scientific based information on social media affects the decision-making	8.1 receiving the scientific based information from social media affects the decision for the vaccination
	The degree to which a person perceives that receiving the information from health care professionals on social media affects the decision-making	8.2 receiving the information from doctor or the expert from social media affects the decision for your daughter vaccination
	The degree to which a person perceives that providing the	8.3 providing the source of the information affects the decision

Table 3.8 Component of source of the information on social media effects decision (Cont.)

Variable	Description	Question
	source of the information on social media affects the decision-making	for your daughter vaccination
	The degree to which a person perceives that sharing case study on social media affects the decision-making	8.4 sharing case study affects the decision for your daughter vaccination (e.g. death case from cervical cancer or side effect from the vaccine)
	The degree to which a person perceives that sharing direct experience on social media affects the decision-making	8.5 sharing direct experience from the others affects the decision for your daughter vaccination

Source: Lemire (2008), Panahi (2012), Ziebland (2008)

3.5 Validity and Reliability Test of Questionnaire

Reliability and validity are methods to demonstrate the rigor and trustworthiness of quantitative (Roberts, 2006). When using questionnaires, it is important to confirm validity and reliability. Validity is defined as the extent to which a concept is accurately measured in a quantitative study. Reliability is defined as the extent to which a research instrument consistently has the same results if it is used in the same situation on repeated occasions (Heale, 2015).

Content validity pertains to the degree to which the instrument fully assesses the construct of interest (Bolarinwa, 2015). The development of a content valid instrument is typically achieved by a rational analysis of the instrument by experts familiar with the construct of interest or experts on the research subject (Bolarinwa, 2015). Experts review all of the questionnaire items for readability, clarity and comprehensiveness and come to some level of agreement as to which items should be included in the final questionnaire. The Index of Conjugate (IOC) is utilized to

assess the content validity of the questionnaire by using at least three reviewers. The rating could be given by the expert indicates whether an item meets the objective. The expert gives score of +1 for certain that the item meets research objective, score of 0 for uncertain that the item meets research objective and score of -1 for certain that the item does not meet research objective. IOC is calculated by calculating the total scores of the agreement of raters in each item and divides by the total number of raters. The items which could be accepted to be the items from of the scale should obtain IOC value greater than 0.50 (Thaveerat, 1997).

This study utilizes IOC to assess the content validity of the questionnaire with 36 items for reviewing. The IOC among three reviewers, there are 3 items to be discarded as IOC values less than 0.5. There are 33 items to be selected in the final questionnaire. (See appendix c)

Reliability can be established using a pilot test. Data collected from pilot test can be analyzed using Statistical Package for Social Sciences (SPSS) (Bolarinwa, 2015). Cronbach alpha (a) is used measure of internal consistency reliability (Litwin, 1995). The alpha coefficient can range from 0 to 1, with 0 representing a questionnaire that is not reliable and 1 representing absolutely reliable questionnaire. The alpha coefficient values of 0.70 or higher is considered acceptable reliability in SPSS (Bolarinwa, 2015). Reliability test of this study is conducted by using a pilot test from 30 subjects. Data collected from pilot test is analyzed using SPSS and the result is shown in section 3.7 Pilot test.

3.6 Pilot Test

In this study, the pilot test is done prior to actual perform data collection; it is executed with 30 respondents to evaluate the understandable of the question and determine the questionnaire's validity and reliability. The questionnaire is revised based on the feedback from the respondents. The language is revised into the term that was easy to understand and provided for the explanation for unclear question.

Table 3.9 Reliability analysis in pilot test

Construct	Cronbach's Alpha	No. of Items
Quality of the information	.702	5
Accessibility	.735	3
Usefulness of social media	.904	6
Behaviors on social media	.806	5
Social influence	.845	5
Content on experience	.710	2
Social media effects decision	.710	2
Source of the information effects decision	.826	5

SPSS program is used for the reliability analysis. Cronbach alpha (a) is the most commonly used measure of internal consistency reliability (Litwin, 1995). Scale's reliability is suggested to higher 0.7. The reliability of the scales was acceptable. All constructs were higher 0.7 which is acceptable for the reliability.

3.7 Data Collection

After the questionnaire has been revised based on the feedback and distributed in online, and paper-based questionnaire at schools.

3.7.1 Distribution period

This study is carried out between November 2016 and January 2017. The period of questionnaire distribution is during the second semester.

	November	December	January	February
Online questionnaire distribution				
Paper-based questionnaire distributing at tutorial schools				
Paper-based questionnaire distributing at schools				
Data analysis				

A data collection is conducted through online, at tutorial schools in Bangkok, Samsen Kindergarten in Bangkok and Chonprathanwittaya School in Nonthaburi.

3.8 Data Analysis

SPSS program is used for analyzing the data. Descriptive analysis is used to interpret the data and make it easy to understand. Mean and frequency test are used to test hypothesis 1 to 7. Cross tabulation, One-way ANOVA and T-test are used to exam the different demographic characteristics and parent's perception of social media.

Results from hypothesis 1 to 7 explain the research's objective 1 and 2 in finding out whether social media can be the channel to create HPV vaccine awareness and the effects on parents' perception of information quality, accessibility and usefulness of social media, source of the information in order to create HPV vaccine awareness.

Cross tabulation is used for analyzing the data how demographic characteristics and HPV vaccine background affects the perception of social media role for driving HPV vaccine awareness in parents. This study uses both independent-samples t-test and one-way analysis of variance (ANOVA) to analyze individual demographic characteristics and HPV vaccine background characteristics, set as independent factors, and variables affecting the perception of social media role for driving HPV vaccine awareness in parents.

CHAPTER IV
RESEARCH RESULTS

This chapter presents the results of analyses based on the data of 400 samples. Descriptive statistics have been used to describe the respondents' demographic information and the results of the survey concerning to the respondents' perception on role of social media to create HPV vaccine awareness. Mean, frequency, T-Test and One-Way ANOVA are used to test the hypothesis of this research.

The analysis results consist of three sections in the following:

Section 1: summary of the respondent's' demographic information

Section 2: results of the survey concerning to the respondents' perception on role of social media to create HPV vaccine awareness

Section 3: data analysis of the respondents' demographic characteristics and HPV vaccine background affects perception on role of social media to create HPV vaccine awareness

4.1 Reliability of the Constructs

The information is gathered from 400 respondents by using self-administered questionnaires. The questionnaire is divided into 8 parts perceived quality of the information, perceived accessibility, perceived usefulness, behavior on social media, social influence, content on experience, social media effects decision and source of the information effects decision.

Table 4.1 Reliability analysis

Construct	Cronbach's Alpha	No. of Items
Quality of the information	.844	5
Accessibility	.774	3

Table 4.1 Reliability analysis (Cont.)

Construct	Cronbach's Alpha	No. of Items
Usefulness of social media	.881	6
Behaviors on social media	.858	5
Social influence	.906	5
Content on experience	.790	2
Social media effect on decision	.813	2
Source of the information effect on decision	.909	5

From table 4.1 scale's reliability of perceived quality of the information is 0.844, perceived accessibility is 0.774, perceived usefulness is 0.881, behavior on social media is 0.858, social influence is 0.906, content on experience is 0.790, social media effect on decision is 0.813 and source of the information on social effect on decision is 0.909. From the SPSS program's reliability calculation, scale's reliability is suggested to higher 0.7. The reliability of the scales is acceptable.

4.2 Demographic Information of the Respondents

The characteristics of the sample are described in this section. The respondents are the parents who have at least one daughter aged between 9 and 12 years. The respondents' demographic are divided into seven categories: gender, the age range of the parents, marital status, the number of children, the education level of the parents, the range of the parents' household incomes, the parents' occupations and the source of preferred health information for their children. All the results are presented in tables 4.2.

Table 4.2 Demographic profile of the respondents

Demographic	Number of respondents (400)	Percentage (%)
Gender		
Male	32	8.0
Female	368	92.0
Age		
30 years or less	15	3.8
31-40 years	143	35.8
41-50 years	205	51.3
51-60 years	33	8.3
61 years or higher	4	1.0
Marital Status		
Single	14	3.5
Married	268	67.0
Living together	92	23.0
Other	26	6.5
Number of child		
1 child	127	31.8
2 children	219	54.8
3 children	43	10.8
4 children or more	11	2.8
Level of education		
undergraduate	122	30.5
Bachelor's degree	227	56.8
Master's degree	48	12.0
Higher than Master’s degree	3	0.8
Family income		
30000 or less	164	41.0
30001 - 60000	156	39.0
60001 - 90000	48	12.0

Table 4.2 Demographic profile of the respondents (Cont.)

Demographic	Number of respondents (400)	Percentage (%)
90001 - 120000	13	3.3
120001 or higher	19	4.8
Occupation		
Government officer	82	20.5
Business owner	95	23.8
Private company employee	114	28.5
Housewife	42	10.5
Freelance	25	6.3
Other	42	10.5
Health care provider		
Yes	59	14.8
No	341	85.3

According to the table 4.2, 92.0% of the respondents are female and 8.0% are male. The age ranges of the respondents are divided into 5 groups. 51.3% of respondents are aged 41-50 years old and 35.8% are aged 31-40 years old. The groups of respondents aged between 51-60 years old and 30 years old are considered as 8.3% and 3.8%, respectively. The minority respondent is aged 61 years old and above (1.0%).

Marital status, most of the respondents get married (67.0%) and 23.0% of the respondents live together. The minority of the respondents' marital status are other (6.5%) and single (3.5%).

Most the parents (54.8%) have 2 children. 31.8% of the parents have 1 child. The minority of the parents have 3 children (10.8%) and 4 children or above (2.8%).

According to the highest educational level of the respondents, the majority of the respondents received Bachelor's degree (56.8%). 30.5% of the respondents studied below Bachelor's degree and 12.0% received Master's degree. There are 3 of the respondents received higher than Master's degree.

The family monthly income is divided into 5 ranges. Most respondents earn below 30,000 THB (41.0%) and 30,001 – 60,000 THB (39.0%). 12.0% of the respondents earns 60,001 – 90,001 THB. The minority earns 90,001-120,000 THB (3.3%) and above 120,000 THB (4.8%).

Most respondents are employed by private company (28.5%) and are business owner (23.8%). 20.5% of the respondents are government officer. The respondents who are housewife and other have the equal percentage of 10.5%. 6.3% of the respondents are freelance.

Majority of the respondent are not health care providers (85.2%). Of the respondents, 14.8% are health care providers.

Table 4.3 Preferred health information of the respondents

Preferred source of health information for their children	Number of respondents (400)	Percentage (%)
Healthcare professionals	182	45.5
Teacher or School	11	2.8
Friends or parents from school	9	2.3
Mass media	83	20.8
Internet	115	28.8
Total	400	100.0

Most parents choose healthcare professionals as preferred source for their children's health (45.5%). Internet and mass media are chosen by the parents as 28.8% and 20.8%, respectively. Teacher, school and friend or parent from school are chosen as preferred source by 2.8% and 2.3%, respectively. Healthcare professionals are the preferred source of children's health for parents. Almost half of the parents choose media as preferred source for their children's health, parents consider mass media and internet as channel for health information for their children.

Table 4.4 HPV vaccine background of the respondents

		Number of respondents (400)	Percentage (%)
Do you know that cervical cancer can be prevented by the vaccine?	Yes	334	83.5
	No	66	16.5
Do you know about human papillomavirus (HPV) vaccine?	Yes	326	81.5
	No	74	18.5
Have you ever received HPV vaccine?	Yes	75	18.8
	No	325	81.3
Do you know that child 9 years or above can get the benefit from HPV vaccine?	Yes	279	69.8
	No	121	30.3

Majority of the parents know that cervical cancer can be prevented by HPV vaccine (83.5%) while 16.5 % of the parents do not know that cervical cancer can be prevented by the vaccine. Regarding the awareness of the vaccine in parents, majority of the parents know HPV vaccine (81.5%) and 18.5% do not know HPV vaccine (18.5%). Only 18.8% of the parent have received HPV vaccine injection while 81.3% of parents have never received the vaccine. In case that the respondents are male this refers to the vaccination for his wife. Most of the parents know HPV vaccine for cervical cancer prevention as a result from HPV infection. However, vaccination rate in parents is less than 20%. The result of parents' awareness in HPV vaccination in children, majority of the parents are aware that the children can get the benefit from HPV vaccine (69.8%) while 30.3% do not know that the children can get the benefit from the vaccination.

4.3 Results of the Respondents' Perception on Role of Social Media to Create HPV Vaccine Awareness

Results of the Respondents' Perception are analyzed by SPSS and shown in the tables below.

Table 4.5 Perceived quality of the information

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 1.1 perceived accuracy, evidence based and reliable	strongly disagree	3	0.8	3.74	Agree
	disagree	13	3.3		
	fair	142	35.5		
	agree	171	42.8		
	strongly agree	71	17.8		
1.2 perceived balance of the information	strongly disagree	1	0.3	3.81	Agree
	disagree	14	3.5		
	fair	121	30.3		
	agree	189	47.3		
	strongly agree	75	18.8		
Q 1.3 perceived consistency	strongly disagree	2	0.5	3.63	Neutral
	disagree	20	5.0		
	fair	155	38.8		
	agree	172	43.0		
	strongly agree	51	12.8		
Q 1.4 perceived understandability	strongly disagree	2	0.5	3.69	Agree
	disagree	22	5.5		
	fair	133	33.3		
	agree	185	46.3		
	strongly agree	58	14.5		
Q 1.5 perceived timeliness	strongly disagree	3	0.8	3.95	Agree
	disagree	14	3.5		
	fair	84	21.0		
	agree	199	49.8		
	strongly agree	100	25.0		

Table 4.5 shows the parent's perception of the quality of the content on social media. Regarding accuracy, scientific based and reliability of the information,

42.8% the parents agree that social media helps them receive valid, reliable information and supported by scientific evidence and 17.8% of parents strongly agree. 35.5% of parents are fair (mean= 3.74). While the percentage of the parents who disagree and strongly disagree are 3.3 and 0.8, respectively.

Regarding perceived balance information, majority of parents agree that social media helps them receive information on benefits and risks of vaccination (47.3%) and 18.8% of parents strongly agree. 30.3% are fair (mean= 3.81). Minority of the parents disagree and strongly disagree are 3.5% and 0.3%, respectively.

Majority of the parents agree that the information on social media is consistent over time (43.0%) and 12.8% of parent strongly agree. 38.8% of parents are fair. While overall perception of the consistency is neutral with mean score of 3.63.

Of the respondents, 46.3% of the parents agree that the language used on social media is easy to understand and 14.5% of parent strongly agree. 33.3% of parents are fair (mean= 3.63). While the percentage of the parents who disagree and strongly disagree are 5.5 and 0.5, respectively.

Majority of the parents agree that social media helps to receive up-to-date information (49.8%) and 25.0% of the parents strongly agree. 21.0% are fair (mean = 3.95). Minority of the parents disagree and strongly disagree are 3.5% and 0.8%, respectively.

For the quality of the information on social media, parents agree that social media can help parents receive accuracy, evidence based and reliable (mean = 3.74), balance of the information (mean = 3.81), the language use is easy to understand (mean = 3.69), the information is provided when needed (mean =3.95). While consistency of the information on social media needs an improvement.

Table 4.6 Perceived accessibility

	Level of agreement	**Number of respondents (400)**	**Percentage (%)**	**Mean**	**Indicator**
Q 2.1 perceived					

Table 4.6 Perceived accessibility (Cont.)

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
availability	strongly disagree	1	0.3	3.99	Agree
	disagree	7	1.8		
	fair	89	22.3		
	agree	200	50.0		
	strongly agree	103	25.8		
Q 2.2 perceived repetition	strongly disagree	3	0.8	3.80	Agree
	disagree	18	4.5		
	fair	117	29.3		
	agree	180	45.0		
	strongly agree	82	20.5		
Q 2.3 perceived cultural competency	strongly disagree	2	0.5	3.84	Agree
	disagree	17	4.3		
	fair	117	29.3		
	agree	172	43.0		
	strongly agree	92	23.0		

Table 4.6 shows the parent's perception of the availability of the information on social media. 50.0% of the parents agree that they can access to the information on social media anytime and 25.8% of the parents strongly agree. 22.3% are fair (mean = 3.99). Minority of the parents disagree and strongly disagree are 1.8% and 0.3%, respectively.

Of the respondents, 45.0% of the parents agree that social media helps them receive the information continuously and 20.5% of the parents strongly agree. 29.3% are fair (mean = 3.80). Minority of the parents disagree and strongly disagree are 4.5% and 0.8%, respectively.

Majority of the parents agree that everyone (regardless of education and income) can access to the information on social media (43.0%) and 23.0% of the parents strongly agreed. 29.3% are fair (mean = 3.84). Minority of the parents disagree and strongly disagree are 4.3% and 0.5%, respectively.

Parents accept that social media help them to access to the information (mean = 3.99), continue receiving the information over time (mean = 3.80) and anyone access it (mean =3.84). Overall, the parents accept social media in terms of the accessibility to the vaccine information.

Table 4.7 Perceived usefulness of social media

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 3.1 find and receive the information from the expert	strongly disagree	7	1.8	3.71	Agree
	disagree	22	5.5		
	fair	123	30.8		
	agree	177	44.3		
	strongly agree	71	17.8		
Q 3.2 reach to support group	strongly disagree	2	0.5	3.77	Agree
	disagree	17	4.3		
	fair	126	31.5		
	agree	180	45.0		
	strongly agree	75	18.8		
Q 3.3 receive the other experience	strongly disagree	4	1.0	3.73	Agree
	disagree	23	5.8		
	fair	131	32.8		
	agree	163	40.8		
	strongly agree	79	19.8		
Q 3.4 facilitate sharing the information	strongly disagree	1	0.3	3.91	Agree
	disagree	8	2.0		
	fair	102	25.5		
	agree	206	51.5		
	strongly agree	83	20.8		
Q 3.5 facilitate exchanging the information	strongly disagree	2	0.5	3.88	Agree
	disagree	10	2.5		
	fair	102	25.5		

Table 4.7 Perceived usefulness of social media (Cont.)

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
	agree	208	52.0		
	strongly agree	78	19.5		
Q 3.6 facilitate searching the information	strongly disagree	1	0.3	3.98	Agree
	disagree	7	1.8		
	fair	89	22.3		
	agree	204	51.0		
	strongly agree	99	24.8		

Table 4.7 shows the parent's perception of usefulness of social media. 44.3% of the parents agree that social media helps them receive and ask the expert convenience and 17.8% of the parents strongly agree. 30.8% are fair (mean = 3.71). While the percentage of the parents who disagree and strongly disagree are 5.5 and 1.8, respectively.

Of the respondents, 45.0% of the parents agree that social media helps them reach to the group of people with same interest receive and 18.8% of the parents strongly agree. 31.5% are fair (mean = 3.77). Minority of the parents disagree and strongly disagree are 4.3% and 0.5%, respectively.

Majority of the parents agree that social media helps them you receive the other experiences (40.8%) and 19.8% of the parents strongly agree. 32.8% are fair (mean = 3.73). Minority of the parents disagree and strongly disagree are 5.8% and 1.0%, respectively.

Majority of the parents agree that social media feature helps them share the information with other easy (51.5%) and 20.8% of the parents strongly agree. 25.5% are fair (mean = 3.91). While the percentage of the parents who disagree and strongly disagree are 2.0 and 0.3, respectively.

Majority of the parents agree that social media feature helps them helps you exchange the information with other easy (52.0%) and 19.5% of the parents strongly agree. 25.5% are fair (mean = 3.88). Minority of the parents disagree and strongly disagree are 2.5% and 0.5%, respectively.

Majority of the parents agree that social media them search for the information easy (51.0%) and 24.8% of the parents strongly agree. 22.3% are fair (mean = 3.98). Minority of the parents disagree and strongly disagree are 1.8% and 0.3%, respectively.

Social media platform is useful and supports the parents for finding and searching for the information from the expert (mean = 3.71), searching for the group of people with same interest (mean = 3.77), receiving the other experience (mean = 3.73). Additionally, social media platform facilitates sharing, exchanging and searching the information, with mean score of 3.91, 3.88 and 3.98, respectively.

Table 4.8 Behaviors on social media when receiving HPV

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 4.1 share the information on social media	strongly disagree	8	2.0	3.74	Agree
	disagree	23	5.8		
	fair	117	29.3		
	agree	169	42.3		
	strongly agree	83	20.8		
Q 4.2 share the information through other channels	strongly disagree	4	1.0	3.58	Neutral
	disagree	33	8.3		
	fair	152	38.0		
	agree	149	37.3		
	strongly agree	62	15.5		
Q 4.3 provide an opinion	strongly disagree	16	4.0	3.44	Neutral
	disagree	37	9.3		
	fair	156	39.0		
	agree	136	34.0		
	strongly agree	55	13.8		

Table 4.8 Behaviors on social media when receiving HPV (Cont.)

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 4.4 express the support on social media	strongly disagree	9	2.3	3.52	Neutral
	disagree	40	10.0		
	fair	145	36.3		
	agree	147	36.8		
	strongly agree	59	14.8		
Q 4.5 share the experience on social media	strongly disagree	9	2.3	3.62	Neutral
	disagree	37	9.3		
	fair	123	30.8		
	agree	161	40.3		
	strongly agree	70	17.5		

Table 4.8 shows the parent's behaviors when receiving the information through social media. 42.3% of the parents agree that they will share the information through social media and 20.8% of the parents strongly agree. 29.3% are fair (mean = 3.74). Minority of the parents disagree and strongly disagree are 5.8% and 2.0%, respectively.

Of the respondents, 38.0% of the parents are fair to agree that they will share the information through other channels. While 37.3% of the parents agree to share the information through other channels and 15.5% of the parents strongly agree (mean = 3.58). According to the mean score of 3.58, they are neither agreeing nor disagreeing to share the information through other channels when receiving the information through other channels.

Of the respondents, 39.0% of the parents are fair to agree that they will provide their opinion. While 34.0% of the parents agree to provide their opinion on social media and 13.8% of the parents strongly agree (mean = 3.44). According to the mean score of 3.44, they are neither agreeing nor disagreeing to provide an opinion.

Regarding the participation on social media, 36.8% of the parents agree that they will express their support on the post by clicking Like and 14.8% of the

parents strongly agreed. 36.8% are fair to do so (mean = 3.52). According to the mean score of 3.52, they are neither agreeing nor disagreeing to express their supports.

Majority of the parents agree to share their experiences (40.3%) and 17.5% of the parents strongly agree. While 30.8% are fair to do so (mean = 3.62). According to the mean score of 3.62, they are neither agreeing nor disagreeing to share their experiences through social media.

Overall behaviors the parents tend to share the information on social media, while they are fair to share the information through other channels, providing their opinion, expressing their support on the information and sharing their experiences through social media.

Table 4.9 Social influence

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 5.1 friend helps get an attention	strongly disagree	3	0.8	3.74	Agree
	disagree	9	2.3		
	fair	147	36.8		
	agree	171	42.8		
	strongly agree	70	17.5		
Q 5.2 friend helps access to the information	strongly disagree	4	1.0	3.70	Agree
	disagree	25	6.3		
	fair	126	31.5		
	agree	177	44.3		
	strongly agree	68	17.0		
Q 5.3 friend helps receive up-to-date information	strongly disagree	1	0.3	3.94	Agree
	disagree	6	1.5		
	fair	97	24.3		
	agree	208	52.0		
	strongly agree	88	22.0		

Table 4.9 Social influence (Cont.)

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 5.4 friend helps receive accuracy and reliable information	strongly disagree	4	1.0	3.63	Neutral
	disagree	12	3.0		
	fair	167	41.8		
	agree	163	40.8		
	strongly agree	54	13.5		
Q 5.5 friend helps you understand the information	strongly disagree	2	0.5	3.83	Agree
	disagree	8	2.0		
	fair	119	29.8		
	agree	200	50.0		
	strongly agree	71	17.8		

Table 4.9 shows the effect of the friend influence on social media. 42.8% of the parents agree that they are interested the information more when sharing by their friends on social media and 17.5% of the parents strongly agree. 36.8% are fair (mean = 3.74). Minority of the parents disagree and strongly disagree are 2.3% and 0.8%, respectively.

Majority of the parents agree that their friend help them access to the information easier (44.3%) and 17.0% of the parents strongly agree. 31.5% are fair (mean = 3.70). Minority of the parents disagree and strongly disagree are 6.3% and 1.0%, respectively.

Majority of the parents agree that they will receive up-to-date information when sharing by friend on social media (52.0%) and 22.0% of the parents strongly agree. 24.3% are fair (mean = 3.94). Minority of the parents disagree and strongly disagree are 1.5% and 0.3%, respectively.

Of the respondents, 41.8% of the parents are fair to agree that they will receive valid and reliable information from friend. While 40.8% of the parents agree they will receive valid and reliable information from friend, 13.5% of the parents strongly agreed (mean = 3.63). According to mean score of 3.63, parents are neither agreeing nor disagreeing that friend helps receiving accuracy and reliable information.

Majority of the parents agree that their friends help them to understand the information (50.0%) and 17.8% of the parents strongly agree. 29.8% are fair (mean = 3.83). Minority of the parents disagree and strongly disagree are 2.0% and 0.5%, respectively.

The result shows that friend has an influence on receiving the information on social media. Parents pay attention on the information shared by their friend. Friend helps to access to the information. Parents think that information shared by friend is up-to-date and easy to understand. However, the reliability of the information from friend needs for an improvement.

Table 4.10 Content on experience

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 6.1 Content on experience on social media provides balance information	strongly disagree	2	0.5	3.92	Agree
	disagree	7	1.8		
	fair	107	26.8		
	agree	189	47.3		
	strongly agree	95	23.8		
Q 6.2 social media helps receive experience from the others	strongly disagree	2	0.5	3.74	Agree
	disagree	17	4.3		
	fair	136	34.0		
	agree	174	43.5		
	strongly agree	71	17.8		

Table 4.10 shows the effect of experience sharing on social media to create the awareness. 47.3% of the parents agreed that the experiences from the others or friend sharing on social media help them receive benefits and risks of the vaccine and 23.8% of the parents strongly agree. 26.8% are fair (mean = 3.92). Minority of the parents disagree and strongly disagree are 1.8% and 0.5%, respectively.

Majority of the parents agree that sharing the experience on social media help them receive the vaccine information (43.5%) and 17.8% of the parents strongly

agree. 34.0% are fair (mean = 3.74). Minority of the parents disagree and strongly disagree are 4.3% and 0.5%, respectively.

Parents agree that they can receive HPV vaccination from the others through social media and also get the balance information in terms of risk and benefit of the vaccine from the other experience.

Table 4.11 Social media effects decision

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 7.1 information on social media affects the decision making	strongly disagree	7	1.8	3.69	Agree
	disagree	23	5.8		
	fair	130	32.5		
	agree	169	42.3		
	strongly agree	71	17.8		
Q 7.2 exchanging information on social media affects the decision making	strongly disagree	5	1.3	3.60	Neutral
	disagree	28	7.0		
	fair	150	37.5		
	agree	155	38.8		
	strongly agree	62	15.5		

Table 4.11 shows the effect of the information on social media on parents' decision. Information from social media has an effect to the parents' decision. 42.3% of the parents agree that receiving the vaccine information through social media affects to the decision for the vaccination and 17.8% of the parents strongly agreed. 32.5% are fair (mean = 3.69). Minority of the parents disagree and strongly disagree are 5.8% and 1.8%, respectively.

Of the respondents, 38.8% of the parents agree that exchanging the vaccine information through social media affects the decision making for the vaccination and 15.5% of the parents strongly agree. 37.5% are fair (mean = 3.60). According to mean score of 3.60, parents are neither agreeing nor disagreeing that exchanging the vaccine information through social media affects the decision for the vaccination.

Table 4.12 Source of the information on social media effects decision

	Level of agreement	Number of respondents (400)	Percentage (%)	Mean	Indicator
Q 8.1 scientific based information	strongly disagree	3	0.8	3.88	Agree
	disagree	11	2.8		
	fair	113	28.2		
	agree	179	44.8		
	strongly agree	94	23.5		
Q 8.2 information from health care professionals	strongly disagree	3	0.8	3.91	Agree
	disagree	14	3.5		
	fair	103	25.8		
	agree	175	43.8		
	strongly agree	105	26.3		
Q 8.3 information with reference	strongly disagree	4	1.0	3.82	Agree
	disagree	17	4.3		
	fair	120	30.0		
	agree	164	41.0		
	strongly agree	95	23.8		
Q 8.4 case study	strongly disagree	6	1.5	3.81	Agree
	disagree	10	2.5		
	fair	125	31.3		
	agree	173	43.3		
	strongly agree	86	21.5		
Q 8.5 direct experience	strongly disagree	4	1.0	3.78	Agree
	disagree	14	3.5		
	fair	127	31.8		
	agree	175	43.8		
	strongly agree	80	20.0		

Table 4.12 shows the effect of source of the information on social media on parents' decision. 44.8% of the parents agree that receiving the scientific based

information from social media affects the decision for the vaccination and 23.5% of the parents strongly agree. 28.2% are fair (mean = 3.88). Minority of the parents disagree and strongly disagree are 2.8% and 0.8%, respectively.

Majority of the parents agree that receiving the information from doctor or the expert from social media affects the decision for their daughter vaccination (43.8%) and 26.3% of the parents strongly agree. 25.8% are fair (mean = 3.91). Minority of the parents disagree and strongly disagree are 3.5% and 0.8%, respectively.

Majority of the parents agree that providing the source of the information affects the decision for their daughter vaccination (41.0%) and 23.8% of the parents strongly agree. 30.0% are fair (mean = 3.82). Minority of the parents disagree and strongly disagree are 4.3% and 1.0%, respectively.

Of the respondents, 43.3% of the parents agree that sharing case study affects the decision for their daughter vaccination and 21.5% of the parents strongly agree. 31.3% are fair (mean = 3.81). Minority of the parents disagree and strongly disagree are 2.5% and 1.5%, respectively.

Majority of the parents agree that receiving direct experience from the others affects the decision for their daughter vaccination (43.8%) and 20.0% of the parents strongly agree. 31.8% are fair (mean = 3.81). Minority of the parents disagree and strongly disagree are 3.5% and 1.0%, respectively.

Parent accepts the variety of source of information. Reliable source of information such as scientific based information, health care professional, the information with reference help parent make a decision for vaccination. Additionally, information from real life such as case study and direct experience from the others affects parents' decision for their children vaccination.

Table 4.13 Summary of crosstab analysis among the different demographic characteristics

	Gender	**Age**	**Education**	**Income**	**Health care provider**	**HPV vaccine experience**	**HPV vaccine awareness in children**
Information quality	.357	.015**	.523	.583	.098	.617	.012**

Table 4.13 Summary of crosstab analysis among the different demographic characteristics (Cont.)

	Gender	Age	Education	Income	Health care provider	HPV vaccine experience	HPV vaccine awareness in children
Accessibility	.529	.871	.102	.546	.712	.792	.125
Usefulness	.765	.001**	.811	.510	.729	.871	.260
Behaviors on social media	.824	.005**	.000**	.345	.263	.911	.173
Social influence	.472	.832	.000**	.416	.148	.618	.541
Content on experience	.805	.000**	.052	.783	.741	.313	.121
Social media and decision	.544	.085	.000**	.612	.144	.693	.995
Source of information and decision	.501	.000**	.000**	.758	.387	.538	.524

Note: ** is significant at 0.05 level

Table 4.13 shows the result from crosstab analysis, parents' perceptions of information quality, accessibility, usefulness, social influence, content on experience, source of information affects decision and behaviors on social media are not different between different gender, family income, being health care provider, HPV vaccine experience.

Parents in different of age have different perception of information quality, usefulness, content on experience, source of information affects decision and behaviors on social media. Parents in different of level of education have different perception of social influence, social media affects decision, source of information affects decision and behaviors on social media. Parents with different HPV vaccine awareness in children found the different perception of information quality.

According to the table 4.13 shows different parents' characteristics mainly in

age and education have a different perception to social media for receiving HPV vaccine information.

4.4 ANOVA Analysis

One-way ANOVA is used to test the different of parent's perception to social media for receiving HPV vaccine information within the demographic characteristics.

Table 4.14 The differences of perception on the quality of the information in terms of accuracy and reliability among level of education by One-Way ANOVA

Dependent list	Educational level	n	Mean	F	Sig.
Q 1.1 perceived accuracy, evidence based and reliable	undergraduate	122	3.56	3.886	.009
	Bachelor's degree	227	3.82		
	Master's degree	48	3.81		
	higher than Master's degree	3	3.00		

From table 4.14 explores that the parents with differences in level of education have a significant difference in perception of accuracy and reliability of the information at statistical significant at the 0.05 level. Parents with Bachelor's degree and Master's degree thought accept the accuracy and reliability of the information on social media.

Table 4.15 The differences of perception on social influence on role of social media among level of education by One-Way ANOVA

Dependent list	Educational level	n	Mean	F	Sig.
Q 5.1 friend helps get an attention	undergraduate	122	3.75	1.866	.135
	Bachelor's degree	227	3.74		
	Master's degree	48	3.77		
	higher than Master's degree	3	2.67		

Table 4.15 The differences of perception on social influence on role of social media among level of education by One-Way ANOVA (Cont.)

Dependent list	Educational level	n	Mean	F	Sig.
Q 5.2 friend helps access to the information	undergraduate	122	3.70	3.725	.012
	Bachelor's degree	227	3.67		
	Master's degree	48	3.92		
	higher than Master's degree	3	2.33		
Q 5.3 friend helps receive up-to-date information	undergraduate	122	3.96	.753	.521
	Bachelor's degree	227	3.91		
	Master's degree	48	4.06		
	higher than Master's degree	3	3.67		
Q 5.4 friend helps receive accuracy and reliable information	undergraduate	122	3.63	2.810	.039
	Bachelor's degree	227	3.63		
	Master's degree	48	3.69		
	higher than Master's degree	3	2.33		
Q 5.5 Your friend helps you understand the information	undergraduate	122	3.84	1.237	.296
	Bachelor's degree	227	3.79		
	Master's degree	48	3.98		
	higher than Master's degree	3	3.33		

From table 4.15 shows the parents with differences in level of education have a significant difference in perception of social influence at statistical significant at the 0.05 level for friend help to access the information and valid and reliable information from friend.

Parents with doctoral degree have a negative perception when receiving the information from friends through social media. They do not agree that the information from their friend through social media is reliable and credible compared with the parents with the different levels of education. Parents with master's degree perceive that their friends help them to receive the information easier through social media compared with parents with doctoral degree who do not agree.

Table 4.16 The differences of source of information on social media effect decision among parents with different level of education by One-Way ANOVA

Dependent list	Educational level	n	Mean	F	Sig.
Q 8.1 scientific based information	Undergraduate	122	3.75	3.318	.020
	Bachelor's degree	227	3.88		
	Master's degree	48	4.13		
	Higher than Master's degree	3	4.67		
Q 8.2 information from health care professionals	Undergraduate	122	3.87	1.174	.319
	Bachelor's degree	227	3.89		
	Master's degree	48	4.13		
	Higher than Master's degree	3	4.00		
Q 8.3 source of the information	Undergraduate	122	3.75	1.221	.302
	Bachelor's degree	227	3.83		
	Master's degree	48	4.00		
	Higher than Master's degree	3	3.33		
Q 8.4 case study	Undergraduate	122	3.73	2.541	.056
	Bachelor's degree	227	3.84		
	Master's degree	48	3.92		
	Higher than Master's degree	3	2.67		
Q 8.5 direct experience	Undergraduate	122	3.73	1.214	.304
	Bachelor's degree	227	3.81		
	Master's degree	48	3.85		
	Higher than Master's degree	3	3.00		

From table 4.16 shows the parents with differences in level of education have a significant difference in source of information effecting decision at statistical significant at the 0.05 level for receiving scientific based information through social media. For the other sources of the information are not different. Patients with doctoral degree tend to accept receiving scientific based information through social media more than the other levels of education.

Table 4.17 The differences of perception on the quality of the information in terms of accuracy and reliability among range of age by One-Way ANOVA

Dependent list	Educational level	n	Mean	F	Sig.
Q 1.1 perceived accuracy, scientific based and reliable	30 years or less	15	3.67	.563	.690
	31-40 years	143	3.75		
	41-50 years	205	3.72		
	51-60 years	33	3.85		
	61 years or higher	4	3.25		

From table 4.17 finds that there is no significant difference on age and perception on the accuracy, scientific based and reliability of the information on social media. The difference of age does not affect the perception of accuracy, scientific based and reliability of the information.

Table 4.18 The differences of behaviors on social media use among range of age by One-Way ANOVA

Dependent list	Educational level	n	Mean	F	Sig.
Q 4.1 share the information on social media	30 years or less	15	3.73	1.262	.284
	31-40 years	143	3.78		
	41-50 years	205	3.74		
	51-60 years	33	3.70		
	61 years or higher	4	2.75		
Q 4.2 share the information through other channels	30 years or less	15	3.47	1.002	.406
	31-40 years	143	3.62		
	41-50 years	205	3.58		
	51-60 years	33	3.58		
	61 years or higher	4	2.75		
Q 4.3 provide an opinion	30 years or less	15	4.07	2.821	.025
	31-40 years	143	3.48		
	41-50 years	205	3.38		

Table 4.18 The differences of behaviors on social media use among range of age by One-Way ANOVA (Cont.)

Dependent list	Educational level	n	Mean	F	Sig.
	51-60 years	33	3.52		
	61 years or higher	4	2.50		
Q 4.4 express the support on social media	30 years or less	15	3.87	2.083	.082
	31-40 years	143	3.59		
	41-50 years	205	3.46		
	51-60 years	33	3.52		
	61 years or higher	4	2.50		
Q 4.5 share the experience on social media	30 years or less	15	3.80	.472	.757
	31-40 years	143	3.56		
	41-50 years	205	3.65		
	51-60 years	33	3.61		
	61 years or higher	4	3.25		

From table 4.18 find the parents with differences in range of age have a significant difference in behavior in providing an opinion on social media at statistical significant at the 0.05 level. Parents age 30 years or less than tend to provide an opinion on social media more than the other groups.

Table 4.19 The differences of source of information on social media affect decision among parents with different range of age by One-Way ANOVA

Dependent list	Educational level	n	Mean	F	Sig.
Q 8.1 scientific based information	30 years or less	15	3.73	.500	.736
	31-40 years	143	3.84		
	41-50 years	205	3.91		
	51-60 years	33	3.91		
	61 years or higher	4	3.50		
Q 8.2 information from health care	30 years or less	15	3.53	1.754	.137
	31-40 years	143	3.92		

Table 4.19 The differences of source of information on social media affect decision among parents with different range of age by One-Way ANOVA (Cont.)

Dependent list	Educational level	n	Mean	F	Sig.
professionals	41-50 years	205	3.97		
	51-60 years	33	3.79		
	61 years or higher	4	3.25		
Q 8.3 source of the information	30 years or less	15	3.67	1.717	.145
	31-40 years	143	3.86		
	41-50 years	205	3.83		
	51-60 years	33	3.79		
	61 years or higher	4	2.75		
Q 8.4 case study	30 years or less	15	3.87	1.355	.249
	31-40 years	143	3.92		
	41-50 years	205	3.76		
	51-60 years	33	3.70		
	61 years or higher	4	3.25		
Q 8.5 direct experience	30 years or less	15	3.80	.920	.452
	31-40 years	143	3.86		
	41-50 years	205	3.76		
	51-60 years	33	3.67		
	61 years or higher	4	3.25		

From table 4.19 shows that there is no significant difference on range of age and difference in source of information affects decision at statistical significant at the 0.05 level. The difference of age does not affect the source of information on social media for decision making.

4.5 T-Test

T-Test is used to test the different of parent's perception to social media for receiving HPV vaccine information between parents' demographic characteristics.

Table 4.20 The different of behavior when receiving the information on social media between people with different HPV vaccination experience

Dependent list	HPV vaccination	n	Mean	F	Sig.
Q 4.1 share the information on social media	Yes	75	3.67	.294	.588
	No	325	3.76		
Q 4.2 share the information through other channels	Yes	75	3.81	6.976	.009
	No	325	3.53		
Q 4.3 provide an opinion	Yes	75	3.49	2.045	.154
	No	325	3.43		
Q 4.4 express the support on social media	Yes	75	3.60	.028	.868
	No	325	3.50		
Q 4.5 share the experience	Yes	75	3.60	.941	.333
	No	325	3.62		

From table 4.20 shows the parents with differences in HPV vaccination experience have a significant difference in behavior in sharing the information at statistical significant at the 0.05 level. The parents who had HPV vaccination experience, they are willing to share the information through the other channel apart from social media. While the other activities such as sharing on social media, providing an opinion, expressing the support do not differ from the parents who never received HPV vaccination.

Table 4.21 The different of behavior when receiving the information on social media between people with different health care provider status

Dependent list	Healthcare provider	n	Mean	F	Sig.
Q 4.1 share the information on social media	Yes	59	3.73	.005	.941
	No	341	3.74		
Q 4.2 share the information through other channels	Yes	59	3.59	.017	.897
	No	341	3.58		
Q 4.3 provide an opinion	Yes	59	3.39	2.534	.112
	No	341	3.45		

Table 4.21 The different of behavior when receiving the information on social media between people with different health care provider status (Cont.)

Dependent list	Healthcare provider	n	Mean	F	Sig.
Q 4.4 express the support on social media	Yes	59	3.39	2.107	.147
	No	341	3.54		
Q 4.5 share the experience	Yes	59	3.46	1.677	.196
	No	341	3.64		

From table 4.21 shows no differences of behavior when receiving the information on social media between parents who work as healthcare provider and not a healthcare provider.

4.6 Summary

Majority of the respondents is female (92.0%). 51.3% of the parents are 41-50 years old. 67.0% of parents are married. 54.8% of the parents have 2 children. 56.8% of parents received Bachelor's degree. 41.0% of the parent have household income less than 30,000 THB per month. 28.5% of the parents are private company employee. Majority of the parent are not health care provider. The preferred source of heath information for their children is health care professional (45.5%). Most of the parent has HPV vaccine awareness (81.5%) and 69.8% is aware that the children can get the benefit from HPV vaccination. However, only 18.8% of the parents received HPV vaccination.

Table 4.22 Summery of mean score of the constructs

Construct	Mean	S.D	Perception
Perceived quality of the information	3.76	.801	Agree
Perceived accessibility	3.88	.814	Agree
Perceived usefulness of social media	3.83	.806	Agree
Behavior on social media	3.58	.934	Neutral
Social influence	3.77	.788	Agree

Table 4.22 Summery of mean score of the constructs (Cont.)

Construct	Mean	S.D	Perception
Content on experience	3.82	.800	Agree
Social media effects decision	3.64	.883	Neutral
Source of the information effects decision	3.84	.848	Agree

The parents agree with overall perception of information quality, accessibility, usefulness of social media. Additionally, they agree that their friends and sharing the experience on social media help to receive the information and source of the information on social media have an effect to their decision of vaccination.

Regarding the parents' perception of social media usefulness for receiving HPV vaccine information, this research finds the positive perception of quality of the content on social media in the attribute of accuracy and Evidence-based (mean = 3.74), balance (mean = 3.81), understandability (mean=3.69), timeliness (mean=3.95). The perception of the availability of the information on social media are positive in available and reach (mean=3.99), cultural competency (mean=3.84), repetition (mean=3.80).

Parent's perception of the usefulness of social media, the parents have a perception that social media helps the parents to receive the information from the expert (mean=3.7), to connect with the people with same interest (mean=3.77), to obtain the vaccine experience from the others (mean=3.73). Parent's perception of social media functionalities that help the parents receiving HPV vaccine information which are sharing the information (mean=3.91), exchanging the information with others (mean=3.88), searching for the information (mean=3.98).

Parents' behavior when receiving HPV vaccine information through social media, the parents will share the information receiving through social media (mean=3.74). It seems that the parents are not willing to share the information through other channel, provide their opinion and supporting the post and share the experience on social media.

Receiving the information from friends has a positive effect to the parent. They agree that they are interested in the information shared by their friends and their friends can help them to be aware of the information, receiving the up-to-date

information, helping them to understand the content and social media help them to exchange the information with friends.

Most of the parents agree that receiving the information through social media affects the decision for their daughter vaccination (mean= 3.69).

Providing source of the information on social media such as scientific based information, information from doctor or the expert, providing the reference of the information, sharing case study and sharing the experience has an effect on the decision-making on vaccination.

Regarding the different level of education, range of age and HPV vaccination experience affects perception of social media role, finds that the different level of education has a different perception on accuracy and reliable of the information, friend has an influence on information access, reliability of the information and receiving the scientific based information. Parents with age below 30 years agree to provide opinion more than the other age ranges. Parents with HPV vaccination experience agree to share the experience through other channels.

CHAPTER V
CONCLUSIONS

According to the findings from previous chapter, this chapter discusses the research findings and presents implication, suggestions and limitation from this research.

5.1 Discussion

Health communication plays an important role to create health awareness in individual and public level. Social media can be one of the channels for communicating HPV vaccine information to create the awareness among the parents. Social media facilitates the access to the reliable information in order to create an awareness and make a decision for their children. The content creator needs to ensure the quality of the information is available. The reliable source of the information on social media also affects the use of the information for consulting physician or decision-making. Using social media can increase the accessibility of information. Parents can access to the information anytime. Social media roles are facilitating sharing, searching the information and increasing interactions with others to obtain HPV vaccine information or address the health concern. The information is disseminated to the other users in order to create the awareness of the vaccine. Friend is one of the factors to help parents access and better understand the information. Many people find the internet to be a valuable tool for using to search for the information for quick answer for their health or to gain a deeper understanding (Lefebvre, 2013). The health care professional is the main role to providing the consultant for the parents. Healthcare professional may consider using social media for HPV vaccine communication to the parents based on the usefulness of social media. The parents reach and consult the doctor or other healthcare professional conveniently and saving time and money for travelling to the hospital.

5.1.1 Demographic Characteristics

Parent's characteristics have an effect on using of social media as a source of health information in the following

5.1.1.1 Gender

The majority of the respondents are female. As the vaccine is for cervical cancer prevention which is considered as disease of female. Many studies found that women are likely to search for health-related information online. Mothers feel responsible for health of family member (Thomas, 2010). The study from Kim (2015) states that mother is a role model of their children for cervical cancer prevention. Mother is the main responsible for communicating the health information to their children. Mother has to acquire the knowledge and teach their children. However, this virus is the most common sexually transmitted infection. Infection with HPV can lead to cervical cancer or genital warts. Men also have an effect to the infection. Many countries recommend the vaccine in boys in order to reduce the incidence of the disease. For the vaccination in boy may need to consider whether mother or father to play the important role to communicate this health information. (Section 4.2 Demographic information about the respondents, chapter 4)

5.1.1.2 Education background

Different level of education affects the perception of the accuracy and reliability of the information social media in parents. Parents with Bachelor's degree and Master's degree accepts the accuracy and reliability of the information on social media. The different level of parent education has an effect to the perception when receiving the information from friend through social media. The parents with doctoral degree disagreed that friend can help access to the information. They do not agree that the information from their friend through social media is reliable and credible compared with the parents with the different levels of education. Parents with master's degree perceived that their friends help them receive the information easier through social media compared with parents with doctoral degree who do not agree. Parents with doctoral degree seem to rely on themselves for receiving or searching for the health information, they likely accepted scientific based information to make a decision. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

5.1.1.3 Age

Difference of age groups does not affect perception on reliability of the information on social medial, friend influence and source of the information on social media. The usage of social media in young people is high; this group of age can drive the activity on social media. However, form the result it showed that no difference of the activities in each group except young parents aged 30 years or below seems to provide their opinion. It is possible that they are more comfortable to provide the opinion on social media as they frequently use. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

5.1.1.4 Direct experience and others' experience

Though most of the parents are aware of HPV vaccine for children, majority of the parents have not received HPV vaccine. We found that no different found between the parents who had HPV vaccination experienced and did not have an experience for the decision for children vaccination when receiving other experience or the information from the expert. Parents possibly believe that the vaccination in children may be different in adult or adolescent in term of efficacy and safety. For this reason, the experience and expert opinion are necessary. The preferred source of health information for their children is health care professional. Regarding this result, the parents agree that social media can help them to reach to the expert and receiving the information from the expert which affects the decision making with HPV vaccination to their children. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

The parents agrees that sharing experiences form the others can help them receive benefit and risk of the vaccine, which affect their decision for their children vaccination. According to Fox (2011b) many social networking site users have followed their friend's personal health experiences or updates on SNS. It is similar to this research that the experiences sharing affects to the health decision.

5.1.2 Perception of the Information

The parents have a positive perception of the quality of the information on social media. The content on social media is important to deliver the key message to

the parents. The quality of the content can create the effective communication on health in the parents. Study of Lemire (2008) found that individual trust in the information and having the opinions of the physician or the expert associated with using internet as a preferred source of health-related information. This study the parents had a neutral agreement on consistency of the information on social media. The content creator needs to be aware of the content consistency to avoid confusion resulting in decreasing the credibility. Additionally, the content owner need to ensure that the accuracy and reliability, balance, understandability of the information on social media are in place. Providing, source of the information including scientific evidence based and expert opinion in the message will have an impact on the decision-making in parents. Real case study, sharing HPV vaccination experiences also contribute to the decision making. As there are variety of social media platforms, the content creator can choose based on the type of content in the order to gain attention from the audience. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

5.1.3 Usefulness of Social Media

From this study, the parents have a positive perception of the usefulness of social media features to facilitate the environment of sharing, exchanging and obtaining the information. Social media can connect the people with same interest and find the expert. Social media features help disseminating the vaccine information on social media is conveniently. Study of Lemire (2008) found that the perceived usefulness of the site, associated with using internet as a preferred source of health-related information. The most of the parent agreed that social media help them to receive HPV vaccine the information, social media can be source of health for the parents to receive HPV vaccine information for their children. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

5.1.4 Parents' Behaviors When Receiving HPV Vaccine Information on Social Media

Regarding the parents' behavior when receiving the information through

social media, they would like to share the information whereas fair to provide a comment or share their experience on social media. Social media increase the sharing and exchanging the information. Health communication through social media, the information exchanged needs to be monitored for quality and reliability. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

Parents tend to disseminate the information without providing their opinion to the others. It is similar to study from Heinonen (2011) that most consumer consumed the content, neither writing a comment nor generating the content. Regarding the opinion, healthcare provider can collect the users' opinion regarding health concern or the questions in order to address health issue and design the message for addressing the concern. From study revealed that parents need the information on risk and benefit of the vaccine. The majority of parents agree that experience sharing can provide the information on social media. This study found that the parents who received the vaccine will share their experience to other channels apart from social media. As this group of parent can be the role model of vaccination but they are willing to share the information through other channel. The study of patient' use of social media (Antheunis, 2013) found one of barriers regarding health related social media use in patient is privacy concern. Additionally, cervical cancer is caused by HPV infection which is sexual transmission. It is the sensitive issue that the parent may not be comfortable to discuss openly. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

5.1.5 Friend Influence

The parents agreed that their friends can help them receive the information timely and be aware of the information. In terms of reliability, this research found the perception of the reliability of the information shared by their friends is fair. Friend can help them to better understand the information. One of the reason is friend with similar background will communicate health information in their own language that will help their friend to better understand the information. It seemed that friend can help the parent understand the information easier but the reliability of the information from friend is need to be addressed. This may reflect to the decision making for the

vaccination for their children. From the study found the fair perception of exchanging the information with friend through social media affects to the decision for HPV vaccination in their children. As friend can help to be aware of the information but reliability of the information from friend is need to be improved. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

5.1.6 Decision

The usefulness of social media can leverage the parent to receive the information. There are many factors influencing parents' decision to their children's health. Quality and reliable source of the information including other experiences from social media also affects parent's decision for vaccination. Though this study does not evaluate the factors affect the acceptance of HPV vaccine in parents. From Songthep (2012) study in Thailand, the findings suggested that further effort is needed to educate parent regarding cost and benefit of HPV vaccine to increase the acceptance of the vaccine. Regarding this, social media can facilitate the information about the availability, price, benefit and risk of the vaccine. In Thailand, a pilot HPV vaccination program is expected to provide to girls. The price concern would be low among the parents. However, providing the benefit and risk of the vaccine is needed the parent to accept the program. Healthcare professional can use social media as alternative channel to communicate or address their concern about the vaccine. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

5.1.7 Key Driver

Based on many studies, healthcare profession is the main source of the information and communicate health information. However, behaviors on social media in parents who are health care providers in this research do not differ from the parents who do not work in healthcare related. It is possible that the main role will be the health care professions who have educated and trained for the information about the vaccine. Role of friend from this study is to disseminate the information and help to access to the information timely to the parents. However, the reliability of the

information from friend is not concerning reliability of the information can be addressed by providing the source of the information that could improve the reliability. Mother with vaccination experienced can provide their opinion or experience of the vaccine to others but social media may not be the first preferred channel to share the information. Younger mother seems to be more active for the other in social media. Providing an opinion from young mother in social media can increase dynamic of the information for disseminating the information. However, the opinion from younger mother may provide positive and negative effect to the other users. Monitoring the conversation in social media is required to ensure the information is correct and address the concern. (4.3 Result of the respondents' perception on role of social media to create HPV vaccine awareness, chapter 4)

5.1.8 Challenges

Trust of the information on social media is one of the concern that affects the use of social media as a source of the information. As a lot of information on available social media, it needs to ensure that most of the parent will access to the qualified content and it will be disseminated to the others while maintaining the quality of the information. Additionally, the challenge is to make the users are able to search and evaluate the information they received whether it is a trustful information.

Personnel data privacy concern is one of the concerns when sharing health information on social media. As HPV infection is considered as a sexual transmitted, it is sensitive personal health information which may not comfortable to discuss openly. The information provided by the user such personal experience has a meaningful impact to create the awareness. However, when personal information is shared to the public it may violate the user privacy.

Preparing the content on social media has to ensure the quality of the information in order to gain trust from the users. The resource for content generating is required, content verification, responsible person to monitor and shape the conversation including the environment to attract the user. For this reason, an investment for health communication through social media is needed for effective communication.

5.2 Implications and Future Research Directions

5.2.1 Implications of the Findings

This research will help to design the communication tool to create the awareness. It includes the content design to meet the expectation of the target group and providing quality of the information in order to create trust and use as a source of health information. Additional, it will help to design the strategy to disseminate the information to target group.

This is the study to explore the factors that social media can be used in health communication for creating HPV vaccine awareness among parents. The parents agree that social media can help them receive the vaccine information for their children. However, in this study does not explore the barriers of social media use. For example, privacy concern, as they do not want to be known as a patient or share personal information to the others. Further study may be conducted to evaluate the effectiveness of social media for creating HPV vaccine. Another study of the effect of social media in order to create the acceptant of the vaccine among the parents might be conducted to evaluate the effect of social media on health behavior. The social media acceptance of healthcare professional to disseminate health information can be conducted to evaluate the effectiveness or limitation of healthcare profession to disseminate the information on social media.

Health communication can be initiated from many levels such as national level through policy maker, or association and hospital level to communicate health information. From this study can identify a work instruction for health communication through social media in the following steps:

1. Determining related stakeholder and role for health communication. The stakeholders that are involved to health in children, which are health care professional, school/teacher and parents. Roles for health communication are content accountability and content dissemination. Content accountability role is responsible for the content for dissemination in terms of creating and verifying the content. Content dissemination is responsible for disseminate the information to the target audience and respond inquiry or concern.

2. Creating content

The content is the key message to deliver the information to the audience in order to promote health.

o Assign the responsible person to create the content. The content should be accurate, reliable and based on scientific evidence, providing the benefits and risks of the intervention (if have), and use the language that is easy to understand; avoid medical jargon. The message should be consistent internally over time, providing an up-to-date information.

o Create the template or prepare useful information for responding inquiries from social media user in order to ensure that the information is accurate and consistent.

o Verify the massage and the information for responding an inquiry. Responsible health care professional should verify the message before. This step is to ensure that the massage is accurate, and easy to understand.

3. Disseminating the content in social media

o Choose social media platform. This step is to choose the suitable social media platform for disseminate health information to the target audience.

Social media platform	Media form
Facebook	Message, photo, infographic, link of source information
Twitter	Short message (up to 280 characters), link of source information, photo
Instagram	Message with photo, short video (less than 1 minute), infographic
YouTube	Video

o Customize the message. The message can be tailored according to the audience preference and social platform. For example, message should gain an attention

o Post the content. When posting the information ensure that name of the writer or editor and creation or revision date are provided.

4. Responsive activity

o Assign the responsible person to monitor and respond to the user. It can increase the interaction and engagement of the message. It needs to ensure that the response is correct and responsive timely.

o Respond and collect an opinion and inquiry from the user on social media in order to improve the content and communication on social media.

Work instruction

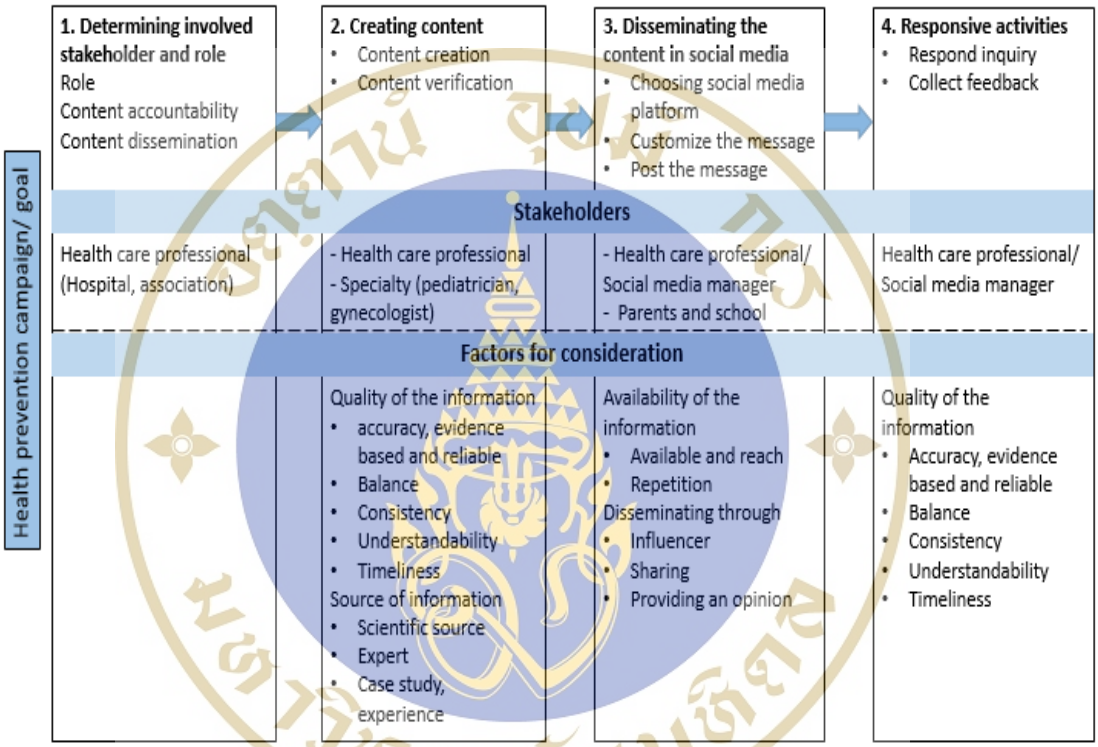

Figure 5.1 shows work instruction to create health content on social media

According to the findings from this study, there are several factors should be considered in the work instruction for disseminating health prevention information. After defining the objective of health prevention communication, the objective can be the communication to create awareness or action. Identifying involved stakeholder who can reach to the target group and disseminate the information. Disseminating health information through social media, content is one of the key to achieve the communication goal. Regarding the quality of the information is the main concern when distributing health information through social media. The content should consist of accuracy, evidence based and reliable. The content should present balance

information and it should be consistent internally over time. Scientific information should be presented in language that is easy to understand. Providing source of information is one of the important factor. It can present in several means. The content creator can provide the link to the scientific information such as a medical article to the user to get the information direct from the source of the information. Other reliable source of information such as expert opinion, case study and user experience can be presented in social media for health communication. Disseminating the information in social media help facilitate the user to access to the information anytime. The influencer and the activities on social media such as sharing the information can increase information accessibility to the other users. The frequency of the information should be suitable for creating awareness or actions. After disseminating the information through social media, the information on social media should be interactive and maintain quality of the information. Social media manager who responds to the user. The quality of the information should remain when providing the response. In order to ensure the consistency of the response, the template for responding the questions should be created for providing the information and answering the questions. Social media manger should provide the response to the user timely in order to make the conversation be more interactive and engaged. Additionally, social media manger has to monitoring the conversation in social media and shape it to consist with the health message. Social media manager collects the feedback and inquiries to revise the content and the response according to the feedback to improve the communication in social media.

5.2.2 Future Research Directions

The future research may study the effect of the other factors. The negative factors can be considered for using social media as a source of the health information such as the effect of privacy concern. The other positive factors such as emotional support can be used to determine the effect of social media. The other diseases that have a different characteristic, it possibly affects the use of social media. Another aspect of social media uses; research can be conduct in healthcare provider perspective to evaluate the acceptance of social media as a health communication tool. The effect

of collaboration between healthcare professional and potential health blogger for create a health awareness through social media.

5.3 Limitations

This study is limited the age of the daughter, as this age range has been recommended to get the vaccine as it will get the most benefit. The factors affect the awareness of the vaccine in children aged above 12 years or in parents may be different from this study. Majority of the respondents are from governmental schools in Bangkok metropolitan area; the parent's demographic characteristics are likely different from the parents from private school.

The nature of cervical cancer is considered as a sexual transmitted and fetal disease. It is sensitive topic and parent may not feel comfortable to discuss or share with the others including the emotional effects from the disease. The content and sharing the information may differ from the other diseases that have less severity, seriousness and non-sexual transmitted disease. This study mainly focuses on disease prevention whereas providing health information of disease treatment, which need to provide emotional support to the patient who suffers from the disease. This study does not measure the emotional support from social media.

Vaccination in children in this age requires a permission from the parent as the children are too young to make a decision. Parent and children need to accept the vaccine, the content on social media has to help parents understand and be able to encourage their children to accept the vaccine.

This is the first study to study role of social in HPV vaccine awareness among parents in Thailand. This study mainly focus on role for social media to create HPV vaccine awareness, which does not study in decision process or factors involved decision making for vaccination among the parents.

5.4 Conclusion

Social media is widely used in Thailand. Social media can be used as one of communication tools for health information. Social media helps to increase the

access to HPV vaccine information for driving the awareness among the parents. The factors should take into account when communicating health information to parents; content and source of information in social media, characteristics of social media platform and social influence. Quality of the information on social media helps gain trust from the parents. The information should be accuracy, evidence based and reliable which should be from reliable source such as expert, medical journal, etc. The content should consist of benefit and risk of vaccination to provide balance of the information. Most of the health information related scientific data, the information should the language that is easy to understand and avoid medical jargon. It should provide the information when needed. Parents consider the content on experience or case study receiving from social media to make a decision for their children vaccination. Characteristic of social media platform help disseminating health information to the parents. Social media helps parents to access the information easy, the information is available regardless of time and place. Usefulness of social media for access to the information, parents can connect to the expert, people with same interest and the functionalities on social media facilitate sharing, exchanging and searching the information. Parents find the information receiving from friends is interesting which can increase the accessibility to the information.

People use social media for different purposes such as for entertainment, connecting with the others, etc. Providing health content on social media has to make it interesting to get an attention. Currently the information is shared quickly without examining the reliability. Content Lack of trust in the information is one of the main concern. Provide the reliable source of the information can help to gain trust and communicate the information more effectively. Healthcare professional is the key to deliver the message to increase the awareness and acceptability of the vaccine. As health care professional is the preferred source for health, social media can connect the parents with the expert to obtain the information in order to make a decision to their children. Social media can engage people with two-way communication. Timely response in social media can increase the engagement and facilitate health communication to be more effective. Additionally, choosing the platform that is suitable for the objective or key message for the diverse target group to get an attention. Currently the information and rumor spread out easy and quickly. It has to

ensure that there is a process to handling rumor or incorrect information spread out in social media timely.

Health communication through social media requires multi-functional team to work together to drive the message starting from creating the content, disseminating the information, monitoring and responding to the inquiry. Content owner who is responsible for the quality of the information includes creating the content to fit social media platform. Social media manager who is responsible for disseminate the content, monitor and respond to the inquiry through social media to drive the awareness. Social media manger can collect the health concern from the user, this information will help healthcare professional or content owner to understand and address that concern accordingly. The response needs to provide in timely manner to maintain the user attention in social media.

Cervical cancer is sexual transmitted disease and can be resulting in death. When communicating regarding disease, the nature or severity of the disease is different from the other diseases. However, the similar concern about patient privacy should be considered to generate and share the information. Especially, when sharing the experience related sexual transmitted disease, people may not comfortable to discuss with the others. Whereas the level of privacy concern for the other disease may not high as sexual transmitted disease. Nature of the disease and objective of the communication set frequency and the tone of the message. For example, different urgency of action affects the frequency of disseminating the information. Some diseases that is seasonal disease such as dengue fever, it has to provide and remind the prevention before the season of dengue fever whereas some diseases have to communicate continuously to increase an awareness or behavior change. Providing the information for disease prevention should be done proactively and more often to increase the awareness. Communicating regarding disease treatment and management especially chronic disease, the tone of the massage should motivate people to follow and share their disease management including providing emotional support. Well-known health problems such as common cold, head lice, sharing these kinds of disease people may not interest the information, as their current knowledge is able to manage the disease.

Social media can be one of the communication tool. It can facilitate the communication between healthcare professional and the target group without the constraint of time and place. Social media can help to disseminate health information in timely manner. People can access to health information through social media any time. Social media allows two-way communication; it helps to ask to expert regarding their concern without going to the hospital. It is less expensive and reach to the various groups of people. Disease that needs to communicate to improve the understanding and disease management, social media platform facilitates the information sharing and engage people. The disease that is not commonly known, epidemic disease, communication through social media help to disseminate the information timely and reach variety groups of people to improve the knowledge and be able to manage the disease effectively. Health communication regarding disease prevention proactively communicate. People are aware of the important to prevent from disease. Besides disease prevention, social media can be the center of the disease management sharing that help the patient to manage their disease. Social media has changed the way people consume the information, social media can improve health communication resulting in improving the health outcome.

REFERENCES

Ancker, J. S., Carpenter, K. M., Greene, P., Hoffman, R., Kukafka, R., Marlow, L.A., Prigerson, H.G. and Quillin, J. M. (2009). Peer-to-peer communication, cancer prevention, and the internet. *Journal of health communication, 14(S1)*, 38-46.

Antheunis, M. L., Tates, K., & Nieboer, T. E. (2013). Patients' and health professionals' use of social media in health care: motives, barriers and expectations. *Patient education and counseling*, *92(3)*, 426-431.

Arndt, J. (1967). *Word of mouth advertising: A review of the literature*. New York: The Advertising Research Foundation Inc.

American Cancer Society (2015). *Global Cancer Facts & Figures 3rd Edition*. Atlanta: American Cancer Society.

Armstrong, E. P. (2007). Economic benefits and costs associated with target vaccinations. *Journal of Managed Care Pharmacy*, *13*(7 Supp B), 12-15.

Aston, R. (2001). Analysis of factors influencing vaccine uptake from various perspectives. *Vaccine*, *20*, S1.

Atkinson, R., & Flint, J. (2001). Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social research update*, *33*(1), 1-4.

Babbie, E. R. (2010). *The practice of social research*. Cengage Learning Asia Pte Ltd.

Badea, M. (2014). Social media and organizational communication. *Procedia-social and behavioral sciences*, *149*, 70-75.

Best, J.W. (1977). *Research in education*. New Jersey: Prince Hall Inc.

Bolarinwa, O. A. (2015). Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Nigerian Postgraduate Medical Journal*, *22*(4), 195.

Burke-Garcia, A., Berry, C. N., Kreps, G. L., & Wright, K. B. (2017, January). The Power & Perspective of Mommy Bloggers: Formative Research with Social Media Opinion Leaders about HPV Vaccination. In *Proceedings of the 50th Hawaii International Conference on System Sciences*.

Burns, P., Jones, S. C., Iverson, D. C., & Caputi, P. (2013). Where do older Australians receive their health information? Health information sources and their perceived reliability. *Journal of Nursing Education and Practice, 3*(12), 60.

Cavana, R. Y., Delahaye, B. L., & Sekaran, U. (2001). *Applied business research: qualitative and quantitative methods*. Milton, Qld: Wiley.

CDC Newsroom. (2012). *Understanding your health shouldn't be a puzzle: Why you should ask for plain language in healthcare.* Retrieved from https://www.cdc.gov/media/storyideas/2012.html

HPV Vaccine Information For Young Women. (2017, January 03). Retrieved February 05, 2017, from https://www.cdc.gov/std/hpv/stdfact-hpv-vaccine-young-women.htm

Check, J., & Schutt, R. K. (2011). *Research methods in education*. Sage Publications.

Clelland, T., Cushman, P., & Hawkins, J. (2013). Challenges of parental involvement within a health promoting school framework in New Zealand. *Education Research International*, 2013.

Cohen, J. T., Neumann, P. J., & Weinstein, M. C. (2008). Does preventive care save money? Health economics and the presidential candidates. *New England Journal of Medicine, 358*(7), 661-663.

Creswell, J. W. (1994). *Research design: Qualitative and quantitative approaches.* Thousand Oaks, CA: Sage.

Muijs, D. (2010). *Doing quantitative research in education with SPSS.* Sage.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of the information technology. *MIS quarterly, 13*(3), 319-340

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information systems research, 3*(1), 60-95.

Dempsey, A. F., Zimet, G. D., Davis, R. L., & Koutsky, L. (2006). Factors that are associated with parental acceptance of human papillomavirus vaccines: a randomized intervention study of written information about HPV. *Pediatrics, 117*(5), 1486-1493.

Detels, Roger. 2015. *Oxford textbook of global public health*. Oxford: Oxford University Press.

Diekema, D. S. (2014, March 14). *Parental Decision Making*. Retrieved January 10, 2017, from https://depts.washington.edu/bioethx/topics/parent.html

Flora, J. A., Maibach, E. W., & Maccoby, N. (1989). The Role of Media Across Four Levels of Health Promotion Intervention. *Annual Review of Public Health, 10*(1), 181-201.

Fox, S. (2011a). Health topics: 80% of internet users look for health information online.

Fox, S. (2011b). *The social life of health information,* 2011. Washington, DC: Pew Internet & American Life Project.

Freimuth, V. S., & Quinn, S. C. (2004). The Contributions of Health Communication to Eliminating Health Disparities. *American Journal of Public Health, 94*(12), 2053–2055.

Gable, J., Eder, J., Noonan, K., & Feemster, K. (2016). *Increasing HPV Vaccination Rates Among Adolescents: Challenges and Opportunities*. Children's Hospital of Philadelphia Research Institute.

Gay, L. R. & Airasian, P. (2000). *Educational research: Competencies for analysis and application (6th ed.)*. Upper Saddle River, NJ: Prentice Hall.

Gilkey, M. B., & McRee, A.-L. (2016). Provider communication about HPV vaccination: A systematic review. *Human Vaccines & Immunotherapeutics, 12*(6), 1454–1468. Globocan 2012: *Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012*. (2013). Retrieved November 05, 2016, from http://globocan.iarc.fr/Pages/fact_sheets_population.aspx

Graham, A. L., Cobb, C. O., & Cobb, N. K. (2016). The internet, social media, and health decision-making. In *Handbook of Health Decision Science* (pp. 335-355). Springer New York.

Greenberg, L., D'Andrea, G., & Lorence, D. (2004). Setting the public agenda for online health search: a white paper and action agenda. *Journal of Medical Internet Research, 6*(2), e18.

Greene, J. A., Choudhry, N. K., Kilabuk, E., & Shrank, W. H. (2011). Online social networking by patients with diabetes: a qualitative evaluation of

communication with Facebook. *Journal of general internal medicine, 26*(3), 287-292.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing*, ebnurs-2015.

Heinonen, K. (2011). Consumer activity in social media: Managerial approaches to consumers' social media behavior. *Journal of Consumer Behaviour, 10*(6), 356-364.

Huber, J. T., & Cruz, J. M. (2000). Information needs and information-seeking behaviors of HIV positive men and women. *Medical Reference Services Quarterly, 19*(3), 39-48.

Hudnut-Beumler, J., Po'e, E., & Barkin, S. (2016). The use of social media for health promotion in Hispanic populations: a scoping systematic review. J*MIR public health and surveillance, 2*(2).

Jupp, V. (2006). *The Sage dictionary of social research methods*. Sage.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business horizons, 53*(1), 59-68.

Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business horizons, 54*(3), 241-251.

Kim, H. W., & Kim, D. H. (2015). Awareness of cervical cancer prevention among mothers of adolescent daughters in Korea: qualitative research. *BMJ open, 5*(5), e006915.

Konstantynowicz, J., Marcinowicz, L., Abramowicz, P., & Abramowicz, M. (2016). What Do Children with Chronic Diseases and Their Parents Think About Pediatricians? A Qualitative Interview Study. *Maternal and child health journal, 20*(8), 1745-1752.

Korda, H., & Itani, Z. (2013). Harnessing social media for health promotion and behavior change. *Health promotion practice, 14*(1), 15-23.

Korsch, B. M., Gozzi, E. K., & Francis, V. (1968). Gaps in doctor-patient communication. *Pediatrics, 42*(5), 855-871.

Lapointe, L., Ramaprasad, J., & Vedel, I. (2014). Creating health awareness: a social media enabled collaboration. *Health and Technology, 4*(1), 43-57.

Lefebvre, R. C. (2013). *Social marketing and social change: Strategies and tools for improving health, well-being, and the environment*. John Wiley & Sons.

Lemire, M., Paré, G., Sicotte, C., & Harvey, C. (2008). Determinants of Internet use as a preferred source of information on personal health. *International journal of medical informatics, 77*(11), 723-734.

Levac, J. J., & O'Sullivan, T. (2016). Social media and its use in health promotion. *Revue interdisciplinaire des sciences de la santé-Interdisciplinary Journal of Health Sciences, 1*(1), 47-53.

Litwin, M. S., & Fink, A. (1995). *How to measure survey reliability and validity* (Vol. 7). Sage.

Mangold, W. G., & Faulds, D. J. (2009). Social media: The new hybrid element of the promotion mix. *Business horizons, 52*(4), 357-365.

Martin, L. R., & DiMatteo, M. R. (Eds.). (2013). *The Oxford handbook of health communication, behavior change, and treatment adherence*. Oxford University Press.

Moorhead, S. A., Hazlett, D. E., Harrison, L., Carroll, J. K., Irwin, A., & Hoving, C. (2013). A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *Journal of medical Internet research, 15*(4).

Niccolai, L. M., Hansen, C. E., Credle, M., & Shapiro, E. D. (2016). Parents' recall and reflections on experiences related to HPV vaccination for their children. *Qualitative health research, 26*(6), 842-850.

National Statistical office, Ministry of Information and Communication Technology. (2014). Retrieved Jun 01, 2016 from http://service.nso.go.th/nso/web/statseries/statseries01.html

Olshen, E., Woods, E. R., Austin, S. B., Luskin, M., & Bauchner, H. (2005). Parental acceptance of the human papillomavirus vaccine. *Journal of Adolescent Health, 37*(3), 248-251.

Panahi, S., Watson, J., & Partridge, H. (2012). Social media and tacit knowledge sharing: developing a conceptual model. *World academy of science, engineering and technology*, (64), 1095-1102.

Raingruber, B. (2014). *Contemporary Health Promotion in Nursing Practice.* Burlington, MA: Jones & Bartlett Learning.

Ramanadhan, S., Mendez, S. R., Rao, M., & Viswanath, K. (2013). Social media use by community-based organizations conducting health promotion: a content analysis. *BMC Public Health*, *13*(1), 1129.

Randeree, E. (2009). Exploring technology impacts of Healthcare 2.0 initiatives. *Telemedicine and e-Health*, *15*(3), 255-260.

Rashotte, L. S. (2009). Gender and Behavior. *Encyclopedia of Group Processes and Intergroup Relations, John M. Levine and Michael A. Hogg, editors Thousand Oaks, CA: Sage Publications*, *1*, 296-300.

Richter, A., & Koch, M. (2008, May). Functions of social networking services. In *Proc. Intl. Conf. on the Design of Cooperative Systems* (pp. 87-98).

Rimal, R. N., & Lapinski, M. K. (2009). Why health communication is important in public health. *Bulletin of the World Health Organization*, *87*(4), 247-247a.

Roberts, P., Priest, H., & Traynor, M. (2006). Reliability and validity in research. *Nursing standard*, *20*(44), 41-45.

Rutten, L. J. F., Arora, N. K., Bakos, A. D., Aziz, N., & Rowland, J. (2005). Information needs and sources of information among cancer patients: a systematic review of research (1980–2003). *Patient education and counseling*, *57*(3), 250-261.

Schiavo, R. (2013). *Health communication: From theory to practice*. John Wiley & Sons.

Siniscalco, M. T., & Auriat, N. (2005). Questionnaire design. *Quantitative research methods in educational planning*, 1-92.

Sleath, B., Wurst, K., & Lowery, T. (2003). Drug information sources and antidepressant adherence. *Community Mental Health Journal*, *39*(4), 359-368.

Smith, D. (2011). Health care consumer's use and trust of health information sources. *Journal of Communication in Healthcare*, *4*(3), 200-210.

Songthap, A., Pitisuttithum, P., Kaewkungwal, J., Fungladda, W., & Bussaratid, V. (2012). Knowledge, attitudes, and acceptability of a human papilloma

virus vaccine among students, parents and teachers in Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health, 43*(2), 340.

Thomas, R. K. (2010). *Marketing health services, Second Edition*. Health Administration Press.

United States Department of Health and Human Services. (2000). Healthy People 2010. Washington: Office of Disease Prevention and Health Promotion.

Ventola, C. L. (2014). Social Media and Health Care Professionals: Benefits, Risks, and Best Practices. *Pharmacy and Therapeutics, 39*(7), 491–520.

Wearesocial. (2016). *Tag: Thailand.* Retrieved Jan 10, 2017 from https://wearesocial.com/blog/tag/thailand

Welch, V., Petkovic, J., Pardo, J. P., Rader, T., & Tugwell, P. (2016). Interactive social media interventions to promote health equity: an overview of reviews. *Health promotion and chronic disease prevention in Canada: research, policy and practice, 36*(4), 63.

World Health Organization. (2012). Health education: theoretical concepts, effective strategies and core competencies: a foundation document to guide capacity development of health educators.

World Health Organization. (2013). Global Vaccine Action Plan 2011-2020. Global Vaccine Action Plan 2011-2020.

World Health Organization. (2013). *HPV vaccine communication: special considerations for a unique vaccine*. Retrieved Dec 10, 2016, from http://www.emro.who.int/about-who/public-health-functions/health-promotion-disease-prevention.html

Worsley, A. (1989). Perceived reliability of sources of health information. *Health Education Research, 4*(3), 367-376.

Wuensch KL. *What is a Likert Scale? And how do you pronounce Likert?* [Online]. Greenville: East Carolina University, 2005. [Cited 2009 Apr 30]. Available from: URL: http://core.ecu.edu/

Xu, S., Markson, C., Costello, K. L., Xing, C. Y., Demissie, K., & Llanos, A. A. (2016). Leveraging social media to promote public health knowledge: example of cancer awareness via Twitter. *JMIR public health and surveillance*, 2(1).

Yang, Z., Cai, S., Zhou, Z., & Zhou, N. (2005). Development and validation of an instrument to measure user perceived service quality of information presenting web portals. *Information & Management, 42*(4), 575-589.

Ziebland, S., & Herxheimer, A. (2008). How patients' experiences contribute to decision making: illustrations from DIPEx (personal experiences of health and illness). *Journal of nursing management, 16*(4), 433-439.

APPENDICES

Appendix A

บทบาทของโซเชียลมีเดียในการสร้างการรับรู้เรื่องวัคซีนฮิวแมนแพ็พพิโลมาในผู้ปกครองของเด็กหญิง

อายุระหว่าง 9-12 ปี

การศึกษานี้มีวัตถุประสงค์เพื่อ ศึกษาบทบาทของการใช้โซเชียลมีเดียเป็นช่องทางในการสร้างการรับรู้เรื่องวัคซีนฮิวแมนแพ็พพิโลมาในผู้ปกครองของเด็กหญิงอายุระหว่าง 9-12 ปี

แบบสอบถามนี้ใช้เวลาประมาณ 10 นาที

แบบสอบถามนี้เป็นส่วนหนึ่งของการวิจัยเพื่อใช้เป็นส่วนหนึ่งในการศึกษาระดับปริญญาโท

ข้อมูลทุกอย่างจะถูกเก็บไว้เป็นความลับและนำไปใช้เพื่อการวิจัยเท่านั้น

<u>คำศัพท์</u>

วัคซีนฮิวแมนแพ็พพิโลมา หรือ HPV วัคซีน เป็นวัคซีนที่ใช้ในการป้องกันการติดเชื้อ human papillomavirus (HPV) ซึ่งเป็นโรคติดเชื้อทางเพศสัมพันธ์ที่พบบ่อยและเป็น สาเหตุหลักของการเกิดมะเร็งปากมดลูก โดยในการศึกษานี้จะใช้คำว่า วัคซีนป้องกันมะเร็งปากมดลูก

โซเชียลมีเดีย (Social media) หมายถึง สื่ออิเล็กทรอนิกส์ ซึ่งเป็นสื่อกลางที่ให้บุคคลทั่วไปมีส่วนร่วมสร้างและแลกเปลี่ยนความคิดเห็นต่างๆ ผ่านอินเทอร์เน็ตได้ ในการศึกษานี้การสื่อสารผ่านโซเชียลมีเดียหมายถึงการสื่อสารผ่านทาง เฟสบุ๊ค (Facebook), ทวิตเตอร์ (twitter), อินสตาแกรม (Instagram) และ ยูทูป (YouTube) เป็นต้น

กรุณาตอบแบบสอบถามทุกข้อ

ท่านมีลูกสาวอายุระหว่าง 9 ถึง 12 ปี

☐ ใช่ ☐ ไม่ใช่

ส่วนที่ 1 ข้อมูลทั่วไป

1. เพศ ☐ ชาย ☐ หญิง

2. อายุ ☐ 30 ปีหรือน้อยกว่า ☐ 31-40 ปี ☐ 41-50 ปี ☐ 51-60 ปี ☐ 61 ปี หรือมากกว่า

3. สถานะ ☐ โสด ☐ แต่งงาน ☐ อยู่ด้วยกัน ☐ อื่นๆ

4. จำนวนบุตร ☐ 1 ☐ 2 ☐ 3 ☐ 4 หรือมากกว่า

5. ระดับการศึกษา

☐ ต่ำกว่าระดับปริญญาตรี ☐ ปริญญาตรี ☐ ปริญญาโท ☐ สูงกว่าระดับปริญญาโท

6. รายได้ครอบครัวโดยประมาณ (บาทต่อเดือน)

☐ 30,000 หรือน้อยกว่า

☐ 30,001 – 60,000

☐ 60,001 – 90,000

☐ 90,001 – 120,000

☐ 120,001 หรือสูงกว่า

7. อาชีพ

☐ รับราชการ ☐ ธุรกิจส่วนตัว ☐ พนักงานบริษัทเอกชน ☐ พ่อบ้าน/แม่บ้าน ☐ พนักงานรับจ้าง ☐ อื่นๆ

8. ท่านทำงานเกี่ยวข้องกับการรักษาหรือให้ความรู้ด้านสาธารณสุข

☐ ใช่ ☐ ไม่ใช่

9. แหล่งข้อมูลที่ท่านใช้หาข้อมูลด้านสุขภาพสำหรับลูกของท่านมากที่สุด

☐ บุคคลากรทางการแพทย์ เช่น แพทย์ พยาบาล เป็นต้น

☐ คุณครูหรือทางโรงเรียน

☐ เพื่อนหรือผู้ปกครองที่โรงเรียนของบุตรท่าน

☐ สื่อต่างๆ เช่น โทรทัศน์ วิทยุ นิตยสาร

☐ อินเทอร์เน็ต

ส่วนที่ 2 วัคซีนป้องกันมะเร็งปากมดลูก

1. ท่านรู้จักวัคซีนป้องกันมะเร็งปากมดลูก

   ☐ ใช่ ☐ ไม่ใช่

2. ท่านเคยได้รับการฉีดวัคซีนป้องกันมะเร็งปากมดลูก หมายเหตุ กรณีเป็นผู้ปกครองผู้ชายให้หมายถึงภรรยาของท่าน

   ☐ ใช่ ☐ ไม่ใช่

3. ท่านทราบว่ามะเร็งปากมดลูกสามารถป้องกันได้โดยการฉีดวัคซีน

   ☐ ใช่ ☐ ไม่ใช่

4. ท่านทราบว่าเด็กหญิงอายุ 9 ปีขึ้นไปสามารถฉีดวัคซีนป้องกันมะเร็งปากมดลูก

   ☐ ใช่ ☐ ไม่ใช่

ส่วนที่ 3 การใช้โซเชียลมีเดีย (social media) ในการสร้างการรับรู้เรื่องวัคซีนป้องกันมะเร็งปากมดลูก

โปรดทำเครื่องหมาย √ ในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุดเกี่ยวกับบทบาทของโซเชียลมีเดียในการสร้างการรับรู้เรื่องวัคซีนป้องกันมะเร็งปากมดลูก

ระดับความเห็นด้วย 5 = มากที่สุด 4 = มาก 3 = ปานกลาง 2 = ไม่เห็นด้วย และ 1 = ไม่เห็นด้วย อย่างยิ่ง

หมายเหตุ ในการศึกษานี้การสื่อสารผ่านโซเชียลมีเดียหมายถึงการสื่อสารผ่านทาง เฟสบุ๊ค (Facebook), ทวิตเตอร์ (twitter), อินสตาแกรม (Instagram) และ ยูทูป (YouTube)

1. ท่านคิดว่า Social media ช่วยให้ท่านได้รับข้อมูลวัคซีนป้องกันมะเร็งปากมดลูก	เห็นด้วยมากที่สุด	มาก	ปานกลาง	น้อย	ไม่เห็นด้วยอย่างยิ่ง
	(5)	(4)	(3)	(2)	(1)
1.1 ข้อมูลเป็นความจริง น่าเชื่อถือและมีข้อมูลทางวิทยาศาสตร์สนับสนุน					
1.2 ทราบข้อมูลด้านประโยชน์และความเสี่ยงของวัคซีนป้องกันมะเร็งปากมดลูก					
1.3 ข้อมูลมีความสอดคล้องกับข้อมูลที่เคยเผยแพร่ก่อนหน้านี้					
1.4 ใช้ภาษาที่ทำให้ท่านเข้าใจได้ง่าย					
1.5 ช่วยให้ได้รับข้อมูลที่ทันต่อสถานการณ์ปัจจุบัน					

2. คุณลักษณะของ Social media เช่น การแชร์ ไลค์ การแสดงความคิดเห็น มีผลต่อการได้รับข้อมูลวัคซีนป้องกันมะเร็งปากมดลูก	เห็นด้วยมากที่สุด	มาก	ปานกลาง	น้อย	ไม่เห็นด้วยอย่างยิ่ง
	(5)	(4)	(3)	(2)	(1)
2.1 เข้าถึงข้อมูลทุกเมื่อที่ท่านต้องการ					
2.2 ช่วยให้ได้รับข้อมูลอย่างสม่ำเสมอและต่อเนื่อง					
2.3 กลุ่มคนที่หลากหลายสามารถเข้าถึงข้อมูลได้เหมือนกัน					
3. ประโยชน์ของ Social media	เห็นด้วยมากที่สุด	มาก	ปานกลาง	น้อย	ไม่เห็นด้วยอย่างยิ่ง
	(5)	(4)	(3)	(2)	(1)
3.1 ช่วยให้ท่านได้รับและสอบถามข้อมูลกับผู้รู้หรือผู้เชี่ยวชาญได้สะดวก					
3.2 ช่วยให้ท่านเข้าถึงกลุ่มคนที่มีความสนใจเหมือนกัน					
3.3 ช่วยให้ท่านทราบประสบการณ์ในการใช้วัคซีนป้องกันมะเร็งปากมดลูกของผู้อื่น					
3.4 ท่านคิดว่า Social media มีคุณลักษณะช่วยให้ท่านแชร์ข้อมูลให้แก่ผู้อื่นได้สะดวก					
3.5 ท่านคิดว่า Social media มีคุณลักษณะช่วยให้ท่านแลกเปลี่ยนข้อมูลกับผู้อื่นได้สะดวก					
3.6 ท่านคิดว่า Social media มีคุณลักษณะช่วยให้ท่านหาข้อมูลได้สะดวก					
4. เมื่อท่านได้รับข้อมูลวัคซีนป้องกันมะเร็งปากมดลูกทาง Social media ท่านจะ	เห็นด้วยมากที่สุด	มาก	ปานกลาง	น้อย	ไม่เห็นด้วยอย่างยิ่ง
	(5)	(4)	(3)	(2)	(1)
4.1 แชร์ข้อมูลให้เพื่อนของท่านผ่านทาง Social media					
4.2 แชร์ข้อมูลให้เพื่อนของท่านผ่านช่องทางอื่นที่ไม่ใช่ Social media เช่น การพูดคุย					
4.3 แสดงความคิดเห็นของท่านที่มีต่อวัคซีนป้องกันมะเร็งปากมดลูกในโพสดังกล่าว					
4.4 แสดงความสนับสนุนหรือเห็นด้วยกับโพสดัง กล่าวโดยการ กดไลค์โพส หรือ กดติดตามเพจนั้นๆ					
4.5 หากท่านมีประสบการณ์ในการใช้วัคซีนป้องกันมะเร็งปากมดลูก ท่านจะแชร์ประสบการ์ณของท่านบน Social media หมายเหตุ กรณีผู้ปกครองผู้ชาย ประสบการณ์ในการใช้วัคซีน หมายถึงประสบการณ์ของภรรยาท่าน					

5. เมื่อท่านได้รับข้อมูลวัคซีนป้องกันมะเร็งปากมดลูกจากเพื่อนของท่านผ่านทาง Social media ท่านคิดว่า	เห็นด้วยมากที่สุด	มาก	ปานกลาง	น้อย	ไม่เห็นด้วยอย่างยิ่ง
	(5)	(4)	(3)	(2)	(1)
5.1 ข้อมูลที่แชร์โดยเพื่อนของท่าน ช่วยให้ท่านมีความสนใจข้อมูลดังกล่าวมากขึ้น					
5.2 เพื่อนช่วยให้ท่านเข้าถึงข้อมูลได้สะดวกขึ้น					
5.3 เพื่อนช่วยให้ท่านได้รับข้อมูลที่ทันต่อสถานการณ์ปัจจุบัน					
5.4 เพื่อนช่วยให้ท่านได้รับข้อมูลที่ถูกต้องและน่าเชื่อถือ					
5.5 เพื่อนช่วยให้ท่านเข้าใจข้อมูลได้ง่ายขึ้น					
6. การแชร์ประสบการณ์บน Social media มีผลต่อการได้รับข้อมูลวัคซีนป้องกันมะเร็งปากมดลูก	เห็นด้วยมากที่สุด	มาก	ปานกลาง	น้อย	ไม่เห็นด้วยอย่างยิ่ง
	(5)	(4)	(3)	(2)	(1)
6.1 ท่านคิดว่าการแชร์ประสบการณ์เรื่องวัคซีนป้องกันมะเร็งปากมดลูกของเพื่อนท่านหรือผู้อื่น บน Social media ช่วยให้ทราบประโยชน์และความเสี่ยงของวัคซีนดังกล่าว					
6.2 ท่านคิดว่าการแชร์ประสบการณ์ บน Social media ช่วยให้ท่านทราบข้อมูลวัคซีนป้องกันมะเร็งปากมดลูก					
7. การได้รับข้อมูลวัคซีนป้องกันมะเร็งปากมดลูกผ่านทาง Social media และการตัดสินใจ	เห็นด้วยมากที่สุด	มาก	ปานกลาง	น้อย	ไม่เห็นด้วยอย่างยิ่ง
	(5)	(4)	(3)	(2)	(1)
7.1 ท่านคิดว่าการได้รับข้อมูลผ่านทาง Social media มีผลต่อการตัดสินใจในการรับวัคซีนในลูกของท่าน					
7.2 ท่านคิดว่าการได้แลกเปลี่ยนข้อมูลผ่านทาง Social media มีผลต่อการตัดสินใจในการรับวัคซีนในลูกของท่าน					
8. ความน่าเชื่อถือของข้อมูลจาก Social media มีผลต่อการตัดสินใจ	เห็นด้วยมากที่สุด	มาก	ปานกลาง	น้อย	ไม่เห็นด้วยอย่างยิ่ง
	(5)	(4)	(3)	(2)	(1)
8.1 ข้อมูลมีการอ้างอิงข้อมูลทางวิทยาศาสร์มีผลต่อการตัดสินใจในการรับ วัคซีนในลูกของท่าน					
8.2 การได้รับข้อมูลจากแพทย์หรือผู้เชี่ยวชาญผ่าน Social media มีผลต่อการตัดสินใจในการรับวัคซีนในลูกของท่าน					
8.3 แหล่งที่มาในการโพสข้อมูลมีผลต่อการตัดสินใจในการรับ วัคซีนในลูกของท่าน					

8.4 การทราบกรณีศึกษาที่เกิดขึ้นผ่านทาง Social media มีผลต่อการตัดสินใจในการรับวัคซีนในลูกของท่าน ตัวอย่างกรณีศึกษา เช่น กรณีการชีวิตจากมะเร็งปากมดลูก หรือการเกิดอาการข้างเคียงจากการฉีดวัคซีน)					
8.5 การแชร์ประสบการณ์ตรงของผู้ที่เคยรับวัคซีนผ่านทาง Social media มีผลต่อการตัดสินใจในการรับวัคซีนในลูกของท่าน					

8. ข้อเสนอแนะ

_____

_____

_____

_____

ขอขอบคุณเป็นอย่างสูงที่ให้ความร่วมมือในการตอบแบบสอบถาม

Appendix B

Role of social media to increase Human papillomavirus (HPV) vaccine awareness in parents of daughters

This study is aim to study role of social media to increase HPV vaccine awareness among parents of children age between 9-12 years.
This survey will take around 10 minutes to complete.
This survey is a part of a research project for the completion of a Master University.
All information will be kept confidential and used for research purposes.
Thank you.

Vocabulary

Human papillomavirus (HPV) vaccine is defined as the vaccine protects against cancer caused by human papillomavirus (HPV) which is the most common sexually transmitted infection and the primary cause of cervical cancer. This study will use the term of cervical cancer vaccine

Social media is defined as forms of electronic communication through which users create online communities to share, exchange information, ideas and other content. This study refers to communication through Facebook, Twitter, Instagram and YouTube, etc.

Please answer all the questions

Do you have at least one daughter aged between 9-12 years?

☐ Yes ☐ No

Section 1 General information

1. Gender

☐ Male ☐ Female

2. Age

☐ 30 years or below

☐ 31-40 years

☐ 41-50 years

☐ 51-60 years

☐ 61 years and above

3. Civil Status

☐ Single

☐ Married

☐ Living together

☐ Other

4. Number of Child

☐ 1

☐ 2

☐ 3

☐ 4 and above

5. Highest level of education

☐ Below Bachelor's degree

☐ Bachelor's Degree

☐ Master's Degree

☐ Higher than master's degree

6. Estimated monthly family income (Baht per month)

☐ 30,000 or lower

☐ 30,001 – 60,000

☐ 60,001 – 90,000

☐ 90,001 – 120,000

☐ 120,001 or higher

7. Occupation

☐ Civil servant

☐ business owner

☐ Private company employee

☐ housewife/househusband

☐ employment

☐ other

8. Do you work in healthcare related?

☐ Yes

☐ No

9. What is your preferred source of health information for your child?

☐ Healthcare professional

☐ School or teacher

☐ Friend or parents from your child's school

☐ Mass media (TV, Radio, magazine)

☐ Internet

Section 2 HPV vaccine awareness

1. Do you know about human papillomavirus (HPV) vaccine?

☐ Yes ☐ No

2. Have you ever received HPV vaccine? Remark: if you are male, this question refers to your wife

☐ Yes ☐ No

3. Do you know that cervical cancer can be prevented by the vaccine?

☐ Yes ☐ No

4. Do you know that child 9 years or above can get the benefit from HPV vaccine?

☐ Yes ☐ No

Section 3 Role of social media to create HPV vaccine awareness

Please rate the level of agreement for social media to create HPV vaccine awareness when HPV vaccine information is posted on social media.

Level of agreement 5= strongly agree 4= Agree 3= Fair 2= Disagree 1= strongly disagree

Social media definition of this study refers to communication through Facebook, Twitter, Instagram and YouTube

	Strongly agree	Agree	Fair	Disagree	Strongly disagree
	(5)	(4)	(3)	(2)	(1)
1. Quality of the information					

1.1 You think that social media helps you receive valid, reliable information and supported by scientific evidence.					
1.2 You think that social media helps you receive information on benefits and risks					
1.3 You think that the information on social media is consistent over time					
1.4 You think that the language used on social media is easy to understand					
1.5 Social media helps you receive up-to-date information					
2. Accessibility					
2.1 You can access to the information on social media anytime					
2.2 Social media helps you receive the information continuously					
2.3 Everyone (regardless of education and income) can access to the information on social media					
3. Usefulness of Social media					
3.1 You think that social media helps you receive and ask the expert convenience					
3.2 You think that social media helps you reach to the group of people with same interest					
3.3 You think that social media helps you receive the other experiences					
3.4 You think that social media feature helps you share the information with other easy					
3.5 You think that social media feature helps you exchange the information with other easy					
3.6 You think that social media helps you search for the information easy					
4. Behavior when receiving HPV information through social media					
4.1 You will share that information through social media					

4.2 You will share that information through other channels (e.g. talking)					
4.3 You will provide your opinion on the post					
4.4 You will express your support (e.g. clicking like or following the page)					
4.5 You will share your experience (if have) through social media Note: for male, please refer to your wife					
5. Social influence					
5.1 You think that you are interested the information more when it shared by your friend on social media					
5.2 You think that your friend help you access to the information easier					
5.3 You think that you will receive up-to-date information when shared by your friend on social media					
5.4 You think that your friend help you receive accuracy and reliable information					
5.5 You think that your friend help you understand the information easy					
6. Content on experience					
6.1 You think that the experience from the others or your friend shared on social media helps you receive benefits and risks of the vaccine					
6.2 You think that sharing the experience on social media helps you receive the vaccine information					
7. Social media affects decision					
7.1 You think that receiving the vaccine information through social media affects the decision for the vaccination					
7.2 You think that exchanging the vaccine information through social media affects the decision for the vaccination					
8. Source of the information on social media effects decision					

8.1 Receiving the scientific based information from social media affects the decision for your daughter vaccination					
8.2 Receiving the information from doctor or the expert from social media affects the decision for your daughter vaccination					
8.3 Providing the source of the information affects the decision for your daughter vaccination					
8.4 Sharing case study affects the decision for your daughter vaccination (e.g. death case from cervical cancer or side effect from the vaccine)					
8.5 Sharing direct experience from the others affects the decision for your daughter vaccination					

8. Suggestion

_____

_____

_____

Thank you very much for you time to answer this survey.

Appendix C

The Index of Conjugate (IOC) is used to assess the content validity of the research questionnaire. Three reviewers evaluate the content validity of the questionnaire; the IOC was between 0.6-1.0. The total IOC is 0.92.

Construct	IOC
Quality of the information	0.97
Accessibility	0.91
Usefulness of social media	0.94
Behaviors on social media	1.00
Social influence	0.91
Content on experience	0.83
Social media effects decision	0.82
Source of the information effects decision	0.96
Total	0.92