KNOWLEDGE SHARING BEHAVIOUR AMONG NURSING SUPERVISORS IN ONLINE HEALTHCARE COMMUNITIES IN JORDAN

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DECLARATION

I hereby declare that the thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously, and is not concurrently submitted for any other degree at Universiti Tenaga Nasional or at any other institutions. This thesis may be made available within the university library and may be photocopied and loaned to other libraries for the purpose of consultation.

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Salah Jamil Abed Al Fattah Shehab

Date: 16th of March, 2020

ABSTRACT

The main objectives of this study are, firstly, to identify the individual factors affecting knowledge sharing behaviour among nursing supervisors in online healthcare communites and secondly, to assess the moderating effect of knowledge self-efficacy on the relationship between individual factors and knowledge sharing behaviour among nursing supervisors in online healthcare communities in Jordan. This study was mainly underpinned by the Social Exchange Theory and Social Cognitive Theory. In order to achieve the study's objectives, a quantitative study method was mainly used, where a total of 337 questionnaires were distributed to the nursing supervisors in private hospitals in Jordan, in the form of self-administrated surveys. A total of 295 questionnaires were returned, of which, 283 questionnaires completed by participants were usable, indicating a response rate of 84% percent. Structural Equation Modelling was applied using Smart PLS for data analysis. The results show that all independent variables including trust, reciprocity, reputation and ability to share on knowledge sharing behaviour explains 62.7% of knowledge sharing behavior of nursing supervisors in online healthcare communities. Secondly, knowledge self-efficacy acts as moderator between trust, reciprocity and reputation and knowledge sharing behavior. However, knowledge self-efficacy does not moderate the relationship between knowledge self-efficacy and knowledge sharing behaviour. This study contributes to the body of knowledge by conceptualizing a research model, which reflects the moderating role of knowledge self-efficacy on the relationship between trust, reciprocity and reputation and knowledge sharing behavior among nursing supervisors in online healthcare communities. Moreover, this study provides guidelines for nursing supervisors in order to improve knowledge sharing behaviour in online healthcare communities in private hospitals in Jordan. The findings of this study offer a basis for further research of knowledge sharing in the context of healthcare sector.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ABS	Ability To Share
AVE	Average Variance Extracted
CA	Cronbach's Alpha
CMV	Common Method Variance
CR	Composite Reliability
HTMT	Heterotrait – Monotrait
KM	Knowledge Management
KSB	Knowledge Sharing Behaviour
KSE	Knowledge Self-Efficacy
OHC	Online Healthcare Communities
PLS	Partial Least Squares
REC	Reciprocity
REP	Reputation
SCT	Social Cognitive Theory
SEM	Structural Equation Modelling
SET	Social Exchange Theory
SPSS	Statistical Package For Social Science
VIF	Variance Inflation Factor

LIST OF PUBLICATIONS

Shehab, S., Eladwiah, R., Rahim, A., & Daud, S. (2018). A Review of Individual Factors on Knowledge Sharing : Evidence from the Empirical Literature. *International Journal of Engineering & Technology*, *7 (4.15)*, 186–194.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter discusses the background of the study, highlighting the gaps in improving knowledge sharing behaviour, which in turn leads to the problem statement. This chapter also discusses the research questions and objectives, followed by an explanation of the significance, scope of the study, operational definitions, as well as the structure of the thesis.

1.2 Background of Study

Knowledge sharing has increasingly become indispensable within the current business environment (Jinyang, 2015). It is considered an important resource for effective execution of key business functions. In order to achieve knowledge sharing, it is necessary to realize the factors influencing knowledge sharing practices. Motivational ideas for knowledge sharing among employees could effectively lead to the conception of novel ideas (Prusak, 1998; Reinholt et al 2009; Ipe, 2003).

Online communities have recently become entrenched as important platforms by which to share knowledge in organizations (Liang, 2016). Various researchers have highlighted the benefits of online communities, namely the reduced cost and time limitations (Baxter, 2002; Booth, 2012; Tseng, 2008; Zboralski, 2009). Botkiin (2000) suggested that members who are well versed in online knowledge sharing skills must uphold the management of effective online knowledge sharing communities. It was shown in a study by Booth (2012) that individual knowledge sharing could be very well developed within online virtual communities. Various studies have similarly asserted that knowledge and information needs may be adequately satisfied by online virtual communities (Jadin et al., 2013; Liang, 2016).

Health is perceived to be an important part of our everyday life. Individuals acquire health-related information from diverse sources that speak of various perspectives, and this information influences their health-related decisions and choices. They seek information related to healthcare from different sources such as online databases and other e-learning sources such as articles, journals and web-based portals (Rai et al., 2012). The trend of searching for health online is not new, according to the report of Pew research centre which states that more than 80% of adults in the USA search health-related information online. Further, the healthcare decisions of over 60% of people are influenced by web-based health-related knowledge and experiences (Jones, 2009; Zhang et al., 2017a).

People these days are progressively participating in different online healthcare communities (OHC) such as social media and other web-based forums to address their issues and problems related to their health in order to obtain valuable information. An online healthcare community is an arrangement of virtual discussion groups designed for the sharing of common topics of interest related to healthcare (Fan et al., 2014). The members of these communities share their experiences, information and feelings with each other, in addition to offering help and support (Fan et al., 2014). One of the benefits of OHC incorporates the "24/7" accessibility of information and help from individuals without any limits imposed by geographic location. The relatively free and less risk-oriented nature indicates that "more than one brain is always better for making decisions". This is especially so in relation to healthcare decisions (Haynes, 2001; Lin et al., 2016; Mein et al., 2016). Research has shown that OHC positively correlates with the user's treatment choices, health anticipation, and outcomes (Zhang et al., 2017b).

Online healthcare communities offer a wide range of online media to encourage knowledge sharing. These include: notification alerts; mailing lists; web blogs; messaging panels; weblogs; as well as discussion forums and other social media networks (Bender et al., 2011). Online healthcare communities offer the potential of connecting patients with similar health conditions, thereby enabling them to share experiences regarding treatments and diet programs (Goeuriot et al., 2011). Furthermore, in the global setting, OHC offers geographic advantages by which to share medical information and social support even across great distances around the world resulting in less cost and time

spent (Barak et al., 2008; Yan et al., 2016b). Online communities have been entrenched in the modern global culture to enable individuals to search for health data and compare their experiences along with medical solutions. Furthermore, many older people in the U.S. (11%) followed their colleagues' health updates in online communities, with five per cent (5%) posting their particular information, concerns, or responses concerning health as well as medical issues (Kluska et al., 2011; Yan et al., 2016b).

According to their health-related problems (Rai et al., 2012), the individuals who are involved in knowledge sharing behaviour and dissemination are healthcare professionals such as doctors, nursing supervisors, pharmacists and other people with related experience; they try to suggest different treatments for patients. Thus, the concept of online healthcare communities is progressively acknowledged as a beneficial way to acquire healthcare knowledge or information for many individuals working within different organizations (Zhang et al., 2017a). It has been said that the significance of implementing knowledge sharing behaviour in the healthcare sector has resulted due to individuals hailing from diverse backgrounds and points of views (Mura et al., 2016). Knowledge sharing behaviour has also been directly linked to enhancing patient safety because the majority of medical errors originate from a lack of learning together with punitive behaviour (Kim et al., 2012).

In despite of the wide popular usage of online health communities, they have shown to be effective platforms for individuals to gain medical information such as medical centre information, medication side-effects, and health-conscious behaviours (Valaitis et al., 2011). Hence, users are concerned with the issue of whom to share the knowledge with, as they expect to obtain a return of intrinsic and extrinsic benefits (Wei, 2005; Yan et al., 2016).

In the healthcare sector, it is essential for nursing supervisors to be digitally literate, in order to promote digital knowledge transfer within their teams and outside the communities (Brunetto et al., 2015). The role of the supervisor is very important to this regard, in which he or she should follow the online sources like healthcare communities where people ask questions and discuss information related to their healthcare concerns and problems (Alhalhouli et al.,2014).

1.3 Problem Statement

Knowledge sharing has increasingly become a strong contender for improvements and further development within the healthcare sector (Kim et al., 2012). There is a problem in sharing knowledge due to the intricacy and knowledge obstacles in utilizing the self-efficacy of knowledge (Aslam et al., 2018). Therefore, self-efficacy of knowledge considered as a critical factor that influence the process of knowledge sharing and influential factors which contribute to knowledge sharing among online communities. Chen et al. (2014) and Zhang et al. (2017) explored the knowledge sharing in online communities, and found that less attention has been given to the relationship between knowledge self-efficacy and knowledge sharing behaviour. This may be an issue in knowledge sharing since complexity and knowledge barriers to the exchange of knowledge among online communities may be seen as knowledge efficacy deficits (Lee et al, 2012; Memon et al., 2016).

However, the main factors that influence the online healthcare community users to share information online are in question (Yan et al., 2016b). Behavioural changes tend to affect one's peers within the community since knowledge sharing is a form of social exchange behaviour (Bock et al., 2005). Nursing supervisors have specified that they struggle with using the Internet, especially in using digital technology for the transfer of digital knowledge (Mather & Cummings, 2017). Mather & Cummings (2017) explained that nurses demonstrate differences in awareness of research and availability of information resources. Determination of the most important factors that correlate positively with knowledge should be investigated so as to be able to provide methods by which to develop and improve knowledge sharing within the healthcare sector (Leal et al., 2016).

The research of Masa'deh (2016), as well as the usage of technology for information sharing is weak in developing countries (including Arab countries) as compared to developed countries. According to Gider et al. (2015), most of the literature has focused on developed countries, with few focusing on knowledge sharing for the online healthcare communities in Jordan. In addition, these developing countries are inclined to the effects of the development of online communities such as social media for sharing knowledge and dissemination of information within the communities (Alhalhouli et al., 2014).

According to Ellis et al (2020), they stated that it is important to increase the knowledge of healthcare staff to improve the delivery of services via the Jordanian hospitals.

Thus, there arises a definite need to research factors, which may affect knowledge sharing among nursing supervisors in the healthcare sector in Jordan. As a developing country, Jordan faces challenges in the healthcare sector challenges mean that a healthcare sectors faced with lack of systematic, efficient, effective approaches to improve the information, and knowledge management (Dammaj et al., 2016). In addition, Alhalhouli (2014), stated that the particular factors that increase or decrease knowledge sharing behaviours in Jordanian hospitals need to be investigated.

This study intends to assess the factors influencing the knowledge sharing behaviour among nursing supervisors in the online healthcare communities. Utilizing both theories of Social Exchange Theory (SET) and Social Cognitive Theory (SCT). It should be noted that SET ignores the role of self-efficacy, which is one of the main components of the knowledge sharing behaviour, thus the theory of Social Cognitive Theory (SCT) was incorporated to support the theoretical findings of this study.

1.4 Research Questions

Based on the problem statement, the research attempts to answer the following questions:

1. What are the individual factors affecting knowledge sharing behaviour among nursing supervisors in online healthcare communities?

2. Does the knowledge self-efficacy act as a moderator on the relationship between individual factors and knowledge sharing behaviour among nursing supervisors in online healthcare communities?

The first question was formulated to examine the direct effects between the studied variables (individual factors and knowledge sharing behaviour). However, the second question has been presented to investigate the moderation role of knowledge self-efficacy on the relationship between individual factors and knowledge sharing behaviour in online

healthcare communities among nursing supervisor in Jordan. In particular, the last question shows that the study intends to investigate the knowledge self-efficacy as moderators where it can change the strength of the direct effect between individual factors and knowledge sharing behaviour.

1.5 Research Objectives

The research objectives are formulated as follows:

1. To identify the individual factors affecting knowledge sharing behaviour among nursing supervisors in online healthcare communities.
2. To assess the moderating effect of knowledge self-efficacy on the relationship between individual factors and knowledge sharing behaviour among nursing supervisors in online healthcare communities.

1.6 Significance of Study

This study focuses on knowledge sharing behaviour within the healthcare sector by investigating individual factors among nursing supervisors working in private hospitals in Jordan. This can contribute to the theoretical and practical levels of knowledge sharing behaviour within the healthcare sector.

The study obtains its significance from the fact that there are currently only a limited number of studies in the field of knowledge sharing in healthcare sector using knowledge self-efficacy as a moderator for supervisory level. Furthermore, it is anticipated that the study would lead to a better understanding of the Social Exchange Theory and Social Cognitive Theory in enhancing the connection between the proposed variables. Social Exchange Theory and Social Cognitive Theory can be helpful in a theoretical framework for this study in order to achieve a better understanding of the roles of social exchange and cognitive issues.

This research study will provide understanding concerning the current state of individuals' characteristics necessary for accommodating the need required to lead to willingness and motivation for knowledge sharing in online healthcare communities. The study also offers a comprehensive view and guidelines for nursing supervisors in the healthcare sector, with a focus on key factors required for successful knowledge sharing behaviours of healthcare workers in Jordanian private hospitals. This includes the effect of individual factors on nursing supervisors' behaviours in order to effectively share their knowledge in online healthcare communities.

This would also offer a method of gaining knowledge regarding the health situation which could be shared in online healthcare communities in social media including Facebook groups, Twitter and LinkedIn. Reliance upon these communities could offer several practical advantages, such as: exchanging ideas and solutions across different geographical locations; gaining support from experienced community members; and information related to quick-response health treatments.

Additionally, practitioners would consider the importance of knowledge self-efficacy as a key to competing in a challenging and changing business environment. Moreover, the study has provided understanding concerning the current state of individuals' characteristics necessary for accommodating the need required to lead to willingness and motivation for knowledge sharing in online healthcare communities

1.7 Scope of Study

The current study seeks to investigate the effect of individual factors on knowledge sharing behaviour in online healthcare communities by the role of the moderation effect of knowledge sharing self-efficacy in private hospitals of Amman, the capital city of Jordan. The reliance of the researcher on private hospitals is rooted in the fact that these institutions have high technological capabilities as well as support and cooperation to be involved in the present study. These hospitals were found to be more cooperative regarding conducting research than public hospitals located in Jordan. It is also important to mention that the number of public hospitals is considered low as compared to the

private ones. Thus, the researcher selected private hospitals rather than public ones to be able to represent the population of nursing supervisors in Jordan.

Nursing supervisors in private hospitals comprise the respondents of this study. This sample was chosen because studies have shown that nursing staff are more likely to carry out interpersonal interventions and share knowledge, whereas physicians are mainly affected by technical intervention in order to optimize the outcome of medical services (Jarrar et al., 2018). In any hospital, nurses are in the majority and the maximum number of medical teams includes nursing staff. Accordingly, their performance can influence the overall development of the hospital (Lin, 2014). Therefore, this study surveyed nursing supervisors in Jordanian private hospitals in order to explore individual behaviour on knowledge sharing in online communities with knowledge self-efficacy as a moderator. This research study has highlighted the issue of understanding about the effect of knowledge sharing in online healthcare communities in social media platforms such as Facebook groups, Twitter and LinkedIn in Jordan.

1.8 Operational Definitions

Knowledge Sharing Behaviour:

The process of involving knowledge exchange between individuals disperse their obtained knowledge, experiences, and skills to others and groups (Zhang et al., 2017a).

Trust:

The belief in the good intent, competence, and reliability of employees with respect to contributing and reusing knowledge (Saleh, 2017).

Reciprocity:

Belief that current sharing behaviour will cause future requests for knowledge to be easily satisfied by others (Zhang et al., 2017).

Ability to Share:

The ability of individuals to share knowledge with each other, this trait refers to capabilities of conceiving and sharing meaning in different situations (Mohammad et al., 2014).

Reputation:

Perception of an improvement in reputation and image due to sharing knowledge in the online community (Havakhor et al, 2018).

Knowledge Self –Efficacy:

Self-efficacy refers to the degree of confidence in one's ability to provide knowledge that is valuable to others (Aslam et al., 2018).

Online Healthcare Communities:

Obtaining health culture regarding the illness by the patients and their relevant by seek and provide social support from others in same circumstances. More specifically, these social groups mainly depend on persons with illness, medical professionals or even a combination of both (Der et al., 2013).

Nursing Supervisor:

Nursing supervisor referees to the head nurse who is responsible for guiding and supervising nurses in his/her ward department (Jarrar et al., 2018).

1.9 Summary and Thesis Structure

This introductory chapter provided an introduction to the study by describing the research problems, research objectives, research questions and significance of the study. The chapter also discussed the research scope by explaining the factors that narrowed the focus on this study. The operational definitions were also outlined. This thesis comprises five chapters. The remainder of this thesis is structured as follows:

Chapter One - Introduction includes the research background, the research problem statement, research questions, research objectives, the scope of the study, the study significance, as well as the operational definition of the terms used throughout the study.

Chapter Two – Literature Review sheds light on previous literature related to the study context. This includes a review of the literature which critically describes knowledge sharing behaviour within online health communities. Moreover, key theories that support the construction of the proposed models have been reviewed. Additionally, this chapter discusses the interrelation of concepts and constructs of this study, thereby guiding the research and development of the research hypotheses. Lastly, a review of previous models for knowledge sharing behaviour in the health sectors was conducted. This defines the research gap and presents conclusions.

Chapter Three – Research Methodology covers the methodological phases followed in the study. This includes research approaches, research design, the strategy of research, population, sampling technique and sample size, research instruments, data collection procedures, data analysis process and tests used.

Chapter Four – Data Analysis presents the results from data analysis and the interpretation of these results. This chapter begins by examining the fundamental issue to ensure that the collected data fits with the proposed conceptual model. Furthermore, initial steps were applied to ensure the purity of the data and testing of the hypotheses by using correct statistical tests. Next, descriptive statistics were reported for each construct. The assessment of the measurement model and structural model was conducted at the main phases of PLS-SEM approach. Finally, the result of hypotheses testing was summarized.

Chapter Five – Discussion and Conclusion discusses the research findings for each of the research objectives and questions, theoretical and practical contributions, as well as explaining the limitations and recommendations for future works.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will cover the current literature review of knowledge sharing behaviour concept and its relation to the knowledge management approach. This chapter also illustrates the issue of knowledge sharing behaviour in online communities to highlight the benefit of sharing knowledge behaviour in these communities. Different studies have been examined in details to match the scope of the current study. Next, the chapter presents an understanding of the underlying theories used to find the relationship among the research variables, where two theories were found to cover these relationships among the individual factors. Moreover, the current status of healthcare in Jordan is briefly discussed in this chapter. Also, the chapter explains the theoretical and hypothetical model pertaining to the study objectives. This enables the researcher to empirically test the hypothesize relationships between the proposed variables.

2.2 Knowledge

There are different perspectives that define knowledge. One perspective view defines 'knowledge as objective' based on a positivist view (Baskerville & Dulipovici, 2006; Wasko & Faraj, 2005). This perspective proposes that knowledge can exist regardless of people who know it and regardless of the context wherein knowledge is created. Knowledge can be separated from the human mind and exist independently (Wasko & Faraj, 2005). Based on this perspective, knowledge management strategies adopted by organizations aim to codify and convert personal knowledge into the structured organizational set which is stored in organizations' knowledge repositories (e.g. documents and electronic database).

While Hung et al. (2015) view knowledge as 'embedded in individuals and residing in the human mind' it is inseparable from those possessing it. This second perspective recognizes that knowledge is tacit and context-based. Knowledge is rooted in an

individual's actions and experiences, and accordingly is difficult to communicate. People can only externalize their knowledge into explicit form (e.g. articles or speeches) to be accessed by others (Zhang, 2010).

Knowledge embedded in an individual's perspective requires knowledge of management strategies focusing on human resources management (Wasko & Faraj, 2005). People are encouraged to interact with each other. Through individual interactions, people may obtain useful information that he/she can apply in situations and from which new knowledge can be gained (Koskinen et al., 2003). According to Kakabadse et al. (2003), information is a form of messaging. Information standing alone is less useful until someone applies it to a specific situation and internalizes it into knowledge with his/her personal elements (e.g. belief, interpretation, and judgment).

A third perspective regards knowledge as being embedded in the community and defines knowledge as the social practice of knowing (Forces et al., 2013). This perspective suggests that knowledge is developed in the context of a community and exists in the form of routinely shared languages (Ozlati, 2012). According to this view, organizations formulate communication strategies to encourage knowledge sharing among a group of people. It also promotes the sharing of experiences and story-telling among people who possess similar backgrounds and interests (Jain et al., 2015).

Based on the above-mentioned perspectives, the author found that our case is more to be fitted with the third perspective. This is mainly because this perspective suggests that knowledge sharing among groups of individuals was usually formulated by organizations as a strategic communication tool by which to facilitate sharing knowledge.

2.3 Knowledge Management

Many researchers have previously defined knowledge management (KM). Huang et al. (2014) defined KM as 'the process capturing, sharing and leveraging the expertise of a company in order to improve the decision making process so as to achieve organizational goals'. Similarly, Nicolas (2004), defined KM as an efficient process for creating,

acquiring and disseminating, leveraging and utilization of knowledge in order to maintain a competitive advantage to achieve organizational objectives.

According to Hsiu et al. (2007), knowledge management focuses on the facilitation and management of activities related to knowledge; these activities include creation, capture, transformation and the utilization of knowledge itself. The concept refers to the facilitation of knowledge workers by an emerging set of organizational designs, operational principles, processes, applications and technologies (Hsiu et al., 2007). The knowledge workers strive to enhance creativity and capability so as to deliver value to their respective organizations. Thus, it is emphasized that organizations which aim to succeed place importance on the acquisition of knowledge. Hsiu et al. (2007), detailed the difficulties organizations face to survive because of inappropriate knowledge management initiatives. Thus far, it is apparent that KM has been regarded by past researchers as a crucial element for organizations.

At the core of KM lies the exchange of information and knowledge among employees. The KM process includes discovery, capture, sharing, and application, further subdivided into seven processes. Nonaka (1994) highlights four of these seven processes, which include socialization, externalization, internalization, and combination. Grant (1996) highlights the remaining three processes, which are an exchange, direction, and routines respectively. In another classification of KM, Alavi & Tiwana (2003) proposed three different processes, which include knowledge acquisition, knowledge sharing, and knowledge utilization.

The review of the literature revealed that knowledge sharing is an important element by which to maintain organizations in modern flexible and competitive markets. This is evident from previous literature that showed a continuous lack in knowledge sharing rather than other knowledge management elements for both individual and organizational levels in all managerial branches (Abzari et al., 2016; Hoof et al., 2009).

2.4 Knowledge Sharing behaviour

Knowledge sharing behaviour is the basic means through which employees can contribute to knowledge application, innovation and, most importantly, the competitive advantage of an organization (Jackson et al., 2006). The basic act of 'sharing' is defined by Sharratt & Usoro (2003) 'as a process whereby a resource is given by one party and received by another'. Knowledge sharing comprises a set of shared understanding, which is related to providing employees with access to relevant information through knowledge networks within organizations (Hoegl et al., 2003). Hence, knowledge sharing lies at the center of success within organizational knowledge management strategies (Chaudhry, 2005). Additionally, it is considered an essential factor for the knowledge responsible for successful organizational performance to be shared in one organization or through other organizations within a particular context (Liao et al., 2004).

Sharing knowledge should be organized and managed for any given part of the institution, ranging from a single user through a department to worldwide institutions (Connell et al., 2014). As indicated by Hidding & Catterall (1998) sharing knowledge through organizations in other societies could spread their cultures along with technological settings. Furthermore, this aspect could influence the motivation and willingness of individuals to share appropriate knowledge (Alsharo et al., 2016). Knowledge sharing implies face to face interactions and communications in organizations (Cross et al., 2001). When knowledge is shared between employees, it will be much more shareable within the organization (Davenport et al., 1998). Sharing of this knowledge from different individuals and organizations can help organizations to improve and maximize their performance as well as reduce errors (Renzl, 2008). It is also known as the process of communication, which allows individuals to share knowledge both inside and outside an organization (Hendriks, 1999).

Sharing of personal knowledge by individuals with each other can create new changes in the way work is done within organizations (Mooradian et al., 2006). In this context, researchers have found a significant relationship between personal knowledge and growing general knowledge of an organization (Spender, 1996). Effective knowledge sharing relies on the employees' ability to arrange the knowledge that they derive through

a system of connections (Andrawina et al., 2008). Davenport et al (2002) proposed that knowledge sharing between individuals in an organization is a type of social exchange behaviour.

In addition to creating new changes, knowledge sharing results in the creation of new knowledge and increases competitive advantages. It may also affect the nature of individuals' jobs, so they are not stuck in the same work or organization. Hence, when individuals leave to work in another organization it becomes easier to continue to share knowledge with these individuals (Abduljalal et al., 2013). Moreover, it becomes both easier for organizations to find the information that they require across employees and faster to adopt new technology and businesses (Bulan & Sensuse, 2012).

According to Chiuet al. (2006), knowledge sharing involves at least two parties: one possessing knowledge and the other seeking knowledge. Hendriks (1999) argues that knowledge sharing is different but related to information sharing. Since knowledge is rooted in the human mind it is difficult to be shared (Goh & Sandhu, 2017). In order to share knowledge with others, the individual who possesses knowledge first needs to externalize or codify his/her personal knowledge into information (called explicit knowledge) in a specific form (e.g. speech, acts, sketch or writing). People who seek knowledge then take the action of internalization, such as learning by doing, interpreting the codified knowledge on the existing knowledge base, etc.

2.5 Knowledge Sharing behaviour in Online Communities

Internet technologies or online communication can be seen as another way to communicate and share knowledge (Hara et al., 2007). The growth of information technology has helped organizations to acquire and share knowledge with their members and has become one of the most critical factors in successful knowledge sharing (Davison et al., 2013; Supar, 2012). Furthermore, knowledge via IT is less expensive and less time consuming then face to face knowledge sharing.

The online community can facilitate knowledge sharing (Hsu et al., 2007). Knowledge sharing is a conveyance behaviour wherein individuals disperse their obtained

knowledge, experiences, and skills to others (Hsiu et al., 2007). In contrast to traditional real-world communities, members of online communities are distributed in scattered geographic locations. Psychologically, due to the lack of face-to-face exchanges among online community members, the construction of a strong bond among these members is scarce. Therefore, many researchers have investigated knowledge sharing behaviours in various online communities, such as professional, online question answering, and online investment communities (Cheung et al., 2013; Park et al., 2014; Song et al., 2010).

In today's knowledge-based organizations, successful knowledge sharing requires a hybrid of people and technology (Ozlati, 2012). This is supported by Charband & Navimipour (2016) who stated that the common advantages of using online communities to share knowledge include an increase in an employee's productivity, performance, creativity and quality of communication. It may even lead to publishing online knowledge of information systems, thus enabling the information to be shared within a short period of time and made available to the masses.

2.6 Knowledge Sharing behaviour in Online Healthcare Communities

Effective knowledge sharing is the main issue in healthcare organizations, even though it is a necessity for all healthcare professionals (Bouma, 2011). Healthcare institutions have started using knowledge sharing as a new practice, defining it as ''team members sharing task-relevant ideas, information, and suggestions with each other'' (Burke et al., 2006). It is also an important element by which to increase a practice (Donna et al., 2012). Mura et al. (2016) found that using knowledge sharing practices in healthcare organizations has a positive effect on patients' safety. According to Tuntrabundit (2017), knowledge sharing is an essential feature in today's healthcare and can be known as collaborative work among professionals (Chau & Hu, 2002). Individuals who work in healthcare institutions can use knowledge sharing in the case of their patients, thus making it easier to share information about patients' diagnoses and treatments (Bouma, 2011).

The benefit of OHC is that they allow members to engage in sensitive topics, such as pregnancy, menstruation, sexuality and other such personal information with regards to

health (Rai et al., 2012). Thus, the topic of OHC has recently received considerable attention from health practitioners. Several members go so far as to opt for self-diagnosing through OHC rather than physically visiting the hospital (Tanis et al., 2016). Everyday users tend to be well-educated on matters related to disease causes, treatment advice and preventive actions by simply inputting personal health information in an OHC forum (Coulter et al., 1999; Eysenbach & Jadad, 2001). Also, OHC benefits greatly from advanced internet technology and has recently emerged as a powerful medium among health practitioners and members of OHC (Zhao et al., 2013).

Participants who share knowledge within OHC view contribution as a perceived benefit as they may find joy in enhancing their own knowledge or social value in the act of educating others (Zhang et al., 2017). Other perceived benefits may include financial incentives from the community (as fees or donations), the joy of interaction with other community members, and /or an increased reputation within the community due to their contributions (Yan et al., 2016b).

Reviewing the literature for previous related models on online healthcare communities revealed some works applied for different environments as shown in Table 2.1. For example, Zhang, et al. (2017), proposed a model for knowledge sharing intention in an online health community in China. The main reason for developing such a model was justified by them as to positively influence the intention of health professionals and normal users to share knowledge. They used the motivation theory to support the relationship among the IVs on one hand, represented by two domains; intrinsic (knowledge self-efficacy, altruism, and empathy) and extrinsic (reputation and reciprocity) motivations of health professionals and normal users and the DV (Knowledge sharing intention in online health communities in China) on the other hand. Their results showed that reciprocity and altruism have a positive effect on the knowledge sharing intention of both health professionals and normal users. Moreover, reputation and knowledge self-efficacy have a significant influence on the knowledge sharing intentions of health professionals rather than normal users; whereas reciprocity, altruism, and empathy have a significant influence on the knowledge sharing intentions of normal users rather than health professionals.

Additionally, Zhang et al. (2017b), proposed a model by which to explore the factors that affect the intentions of sharing knowledge in healthcare Question-and-Answer communities by integrating social capital and motivation theories. The effects of the intrinsic and extrinsic motivations of two user types were examined and compared. The results showed that social capital positively affected intrinsic and extrinsic motivations, which in turn positively influenced the intention of health professionals and normal users to share knowledge. Motivations of members fully mediated the effects of social capital on knowledge sharing intentions. Specifically, intrinsic motivation influenced knowledge sharing intention more for health practitioners rather than for normal users. Conversely, extrinsic motivation influencing the knowledge sharing intention bore the same result more for normal users rather than for health practitioners.

Moreover, Lai & Chen. (2014) developed a model to examine the predictors of knowledge sharing intentions in Taiwan. They incorporated extrinsic and intrinsic motivation, as well as intra-community factors to be the dimensions of their model. They found that the most influential factors affecting the knowledge-sharing intentions are intrinsic motivational factors (enjoyment in helping others and knowledge self-efficacy). On the other hand, knowledge-sharing intentions are also affected by extrinsic motivational factors (reciprocity and reputation). Intra-community factors, such as perceived moderator's enthusiasm, offline activities, and enjoy ability also affect knowledge-sharing intentions.

Table 2.1 Previous Related Models

Title & source	Constructs	Objectives	Respondents	Country	Theory
Social capital, motivations, and knowledge sharing intention in health Q&A communities. Zhang et al. (2017)	I.V Intrinsic: -Knowledge Self-efficacy. -Altruism. -Empathy. Extrinsic: -reputation - reciprocity DV-Knowledge sharing intention in online health communities in China.	To justify the positive influence on the intention of health professionals and normal users to share knowledge.	Users of health Q&A communities.	China	Individual motivation and Social capital theories.
Knowledge sharing motivations in online health communities: A comparative study of health professionals and normal users. Zhang et al. (2017b)	I.V -social capital -Intrinsic motivations. -extrinsic motivations. DV -knowledge sharing intention.	To explore the factors that affect the intentions of sharing knowledge in health Q&A communities.	Health professionals and normal users.	China	Motivation theory.

Table 2.1 Previous Related Models (Continue)

Title & source	Constructs	Objectives	Respondents	Country	Theory
Knowledge sharing in interest online communities: A comparison of posters and lurkers H.-M. Lai & Chen. (2014)	I.V Extrinsic Motivation -Reputation -Reciprocity Intrinsic Motivation -Enjoyment in Helping Others -Knowledge Self-Efficacy Intra-Community Factors -Perceived Moderator's Enthusiasm -Offline Activities -Enjoy ability D.V Intention to Share Knowledge	To study the influence of knowledge sharing intention in Taiwan.	Online survey	Taiwan	Social capital theory & Social exchange theory

2.7 Healthcare Sector in Jordan

The Ministry of Health in Jordan (2018),noted that the development in Jordan's healthcare began after it became the Hashemite Kingdom of Jordan, its independence and its unity with the West Bank. In fact, the pioneering Ministry of Health was set up on December 14, 1950, after which six health departments were established, with physician leaders in different locations in the Kingdom, who remained answerable to the Ministry of Health (MOH).

The first nursing college in the country was built in 1953, and the first physicians association and central laboratory for medical tests came into being in 1955. Nineteen sixty-two marked the establishment of Prince Mona Nursing College, after which, the first insurance system was set up for military members and families the following year.

By 1965, the same was established for civil servants and by the 1970s, the first medical faculty in the form of Jordan University was established, marked by the inauguration of the Allied Medical Professions Institute in Irbid, and the Medical Hussein City run by military staff. The pioneering pharmacy faculty was set up by 1980 in Jordan University.

In the current times, Jordan has high-quality healthcare system when it comes to the required healthcare facilities. The country recorded 104 hospitals by 2014, with 31 of them under the MOH, 12 under the Royal Military, 2 as university hospitals, and the rest (68) were private hospitals. The number of hospital beds were reported to reach 12798, divided as follows; 5094 under MOH, 2269 under Military Services, 1090 under universities, and 4345 as private hospitals (Ministry of Health in Jordan, 2018).

The literature review discovered that many researches have been undertaken to assess an individual's needs to impart knowledge in the online healthcare community. However, only limited researches have been accomplished with regards to the function of social exchange including its interaction with social cognitive. Therefore, it is crucial to study this interaction in this study. Next section will describe Social Exchange Theory and Social Cognitive Theory as the underlying theories of this study.

2.8 Underlying Theories

2.8.1 Social Exchange Theory

Social exchange theory (SET) was developed by Blau (1964) and has been used as the most influential conceptual base for understanding workplace behaviour and relationship (Cropanzano & Mitchell, 2005). This theory posits that the exchange of the behaviour between people is conditional upon the cost and benefit associated with that behaviour (Homans, 1961). In an exchange of behaviours, people will make a comparative analysis of the cost and benefits associated with the behaviours. In other words, people will compare whether the value of the behaviours received is comparable with the values of the behaviour returned. Further, the theory suggests that before executing certain behaviours, people will cognitively conduct either an external or an internal cost and benefit analysis. If the benefits of behaviours exceed the cost of that particular behaviour, it is likely that people will engage in that exchange behaviour (Liao, 2008). In contrast, if the costs exceed the benefits for a particular behaviour, people will programmatically terminate the behaviour (Goh et al., 2013). Thus, the purpose of the exchange relationship is to maximize the benefits and minimize the costs (Othman & Skaik, 2014). Blau (1964) posit that people engage in social exchange only when they believe that there is a benefit associated with that behaviour or exchange.

Knowledge sharing is one form of social exchange (Mafabi et al., 2017) and knowledge is considered to be a vital resource for exchange, especially in online communities (Jinyang, 2015b). WeiLi et al. (2017) argued that social exchange theory is one of the most famous in explaining knowledge sharing behaviours. This theory has been employed in investigating behaviour pertaining to knowledge sharing (Goh & Sandhu, 2017; Kankanhalliv et al., 2005; Homans, 1958). According to SET, individuals exchange their knowledge with others because they believe that such behaviour of knowledge sharing will be reciprocated with positive behaviours or benefits. SET also suggests that knowledge givers exchange information only with the expectation that valuable knowledge will be returned (Zafer, 2017).

Peter Michael Blau (1964) emphasized that SET could provide valuable insights to explain contexts in which individuals decide to either withhold or share knowledge (Cropanzano et al., 2005; Kim et al., 2015). Knowledge itself could be thought of as a resource which is intangible and may be exchanged socially (Ritala et al., 2015). In terms of costs and benefits, knowledge given through social exchange counts as a cost (because of time and effort) and knowledge received as a benefit (Kankanhalli et al., 2005; Lo, 2015). SET could provide clear ideas about the situation of how individuals can decide whether to participate in knowledge sharing behaviour or not (Blau, 1964). Furthermore, this theory posits that an individual has ultimate control over their interactions with others (Liang, 2016). The theory views interpersonal interaction as a process in which various parties conduct activities and exchange valuable resources with one another (Kim et al., 2015).

As discussed above, SET proposes that individuals are willing to share their knowledge because they believe that such behaviours will be reciprocated accordingly with desirable benefits and these benefits will outweigh the cost of the knowledge sharing (Chuang, & Hsu, 2013). These benefits may be in the form of a reward system or economic incentives provided by the organization, such as salary and bonus increase, promotion, and job security (Bock et al., 2005). SET identifies reciprocity on the history of exchanges occurring over time, with positive benefits generally not reciprocated right away (Bartol et al., 2009). Nevertheless, individuals have been shown to share knowledge mainly under the assumptions of expected future benefits not outweighing the costs of the knowledge sharing activity itself (Nor, 2011).

Liang (2008) points out that, among several other theories related to studies on knowledge, social exchange theory is one of the most famous in explaining knowledge sharing; according to this theory, individuals exchange their knowledge because they realize the benefit that may result from such behaviour. Hence, people who share knowledge in organizations that provide an environment to support a positive perception are more likely to stay satisfy with their jobs. According to Ismail et al (2010) SET addresses an individual's knowledge-sharing behaviour. According to this theory, individuals themselves control their interaction with other individuals (Liang, 2008). SET provides a method of deal with sharing. While keeping in mind the end goal to

expand as set picked up, people may fabricate social associations with others by sharing their insight (Dong et al., 2017).

Past literature has detailed that elements identified with the SET are effective in clarifying knowledge sharing conduct among people. They incorporate individual cognizance, interpersonal collaboration, and hierarchical settings (Liang, 2008). SET could provide clear ideas about the situation of how individuals can decide whether to adapt in knowledge sharing behaviour or not (Blau, 1964). The main aspect of social exchange in the workplace is that the nursing supervisors' behaviour may impact subordinates' behaviour (Yun, 2016). Nursing supervisor may need to try and provide more resources to encourage employees' knowledge sharing (Kim et al, 2015).

Individuals in online communities also tend to take part in knowledge sharing. SET implies that appropriate KS behaviour has an impact on strengthening bonds among organization employees. Even despite this, knowledge sharers in online communities tend to lose their value and benefit contributors, due to the fact that effort and time entails a price (Ali et al, 2016). SET has been commonly employed to investigate behaviour pertaining to knowledge sharing (Goh et al., 2017; Kankanhalliv et al., 2005). As an example, Peter Michael Blau (1964) put forth the idea that the social exchange among individuals takes place due to social attraction. Thus, parties tend to engage in the social exchange only when both are convinced that there lies useful information with the other. This leads to a need to garner the appropriate resources to meet an agreement for a feasible social exchange. It has previously been shown extensively that knowledge sharing is one form of social exchange (Mafabi,2017).

As mention in previous, SET proposes that individuals are willing to share their knowledge because such behaviour brings desirable benefits and have outweighed the cost of knowledge sharing in their mind ,These benefits may take the form of a reward system or economic incentives provided by the organization, such as salary and bonus increases, promotion, and job security (Todorova et al, 2014). Within the context of social exchanges, individuals help others with the expectation of future gains. Knowledge itself could be thought of as a resource which is intangible and may be exchanged socially (Ritala et al., 2015). In terms of costs and benefits, knowledge given through social

exchange counts as a cost (because of time and effort) and knowledge received as a benefit (Lo, 2015). In this theory, the interpersonal interaction is a process where different parties exchange beneficial sources with each other. Social exchange and interactions among colleagues are crucial for encouraging knowledge sharing behaviour (Goh and Sandhu, 2017).

Radaelli et al. (2014), Park & Lee (2014), long Wu et al. (2013), Kim et al. (2015), Tuan et al. (2016), Lo. (2015), Yan et al. (2016), Goh & Sandhu (2017), WeiLi et al (2017), Mura et al. (2016) investigated the social exchange theory in different fields and found that the SET has been recognized as the most common theory that was used in the healthcare context. Following the theoretical and empirical discussion, the researcher expects that SET will play a key role in determining an individual's perception towards sharing knowledge, specifically, in online communities. Hence, the researcher presumes that the relationship between individual factors and knowledge sharing behaviour among nursing supervisors in online healthcare communities is best explained by SET. Consequently, According to Jinyang (2015), knowledge is considered a vital resource for exchange, especially in online communities. Thus, following SET, when the benefit exceeds the cost, there will be a high probability of knowledge sharing behaviour among nursing supervisors in the online community. In contrast, when the cost exceeds the benefit, the tendency for knowledge sharing will be very low.

2.8.2 Social Cognitive Theory

The social cognitive theory (SCT) was developed by Bandura (1989) and has been used in predicting individual behaviours. This theory posits that individual behaviour is shaped by the triadic reciprocal interaction among internal factors such as, namely: individual cognition; social factors such as the social group (online health community); environmental factors and an individual's expectation and belief (Bandura, 2001). The two major types of expectation beliefs that guide individual behaviour are expected outcomes and individual self-efficacy respectively (Bandura, 1989). Furthermore, an individual self-efficacy, expected outcomes and the perceived benefit from those outcomes have a significant influence on the individual cognitive process and individual behaviours (Hawley et al., 2010).

Self-efficacy refers to “people's judgment of their capabilities to organize and execute courses of action required attaining designated types of performance” (Lent, 1996). It is “one of the most theoretically, heuristically and practically useful concepts formulated in modern psychology” (Betz et al., 1996). Prior research has demonstrated that self-efficacy lays the foundation for personal achievements, personal well-being, and human motivation. Bandura (1977) explained that “people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true” (Cherian & Jacob, 2013). Over the last few decades, the researchers have emphasized the importance of individual self-efficacy and expectation in predicting individual health behaviours.

SCT focuses mainly on the concept of self-efficacy, which is considered as “one of the most theoretically, heuristically and practically useful concepts formulated in modern psychology” (Betz et al., 1996). Other authors have also given their opinions on self-efficacy. For example, Lent (1996) states that self-efficacy actually refers to “people's judgment of their capabilities to organize and execute courses of action required attaining designated types of performance”. The concept of self-efficacy lays the foundation for personal achievements, personal well-being, and human motivation. Bandura (1977) regards the role of self-efficacy beliefs in human functioning as “people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true”(Cherian et al, 2013). Self-concepts are considered to reflect people’s beliefs on their own efficacy or effectiveness to execute tasks (Aslam et al., 2018).

The SCT implies that the outcomes from personal and performance standpoints of an individual would be developed based on expected incentives or consequences associated with the behaviour (Compeau et al, 1999; Hsu et al., 2007). Actors of the personal- and performance-related outcome expectations include the benefits/rewards which follow an individual’s knowledge sharing behaviours (Wang et al, 2015).

Researchers have used SCT in explaining the relationship between self-efficacy and specific behaviours. For example, Schunk et al. (2008) stated that an individual’s knowledge sharing behaviour is partially shaped and controlled by social network influences, i.e. the social systems and the individual’s self-efficacy and expectations. In

sum, the literature suggests that SCT is an important framework for understanding human behaviours such as individual performance, motivation, lifestyle, career choice, and knowledge sharing behaviour (Bandura, 1999; Wang et al., 2019). Thus, keeping in view the importance of SCT in explaining the relationship between individual behaviours and self-efficacy, this study will employ SCT to examine the moderating effect of knowledge self-efficacy of the relation between individual factors and knowledge sharing behaviour, specifically, in online healthcare communities.

Previous studies have shown that an individual with high self-efficacy tends to pursue activities with more drive and passion; and use cognitive resources efficiently to execute a task (Bandura, 1999). Previous literature has also empirically confirmed this concept (Alireza et al., 2013; Chen et al., 2012; Tsai et al., 2010). Furthermore, individuals with high levels of self-efficacy tend to be more self-confident and motivated. SCT suggests that individual motivation and action are situationally bounded and an individual is more or less likely to undertake a specified behaviour (Kreps et al., 2011; Font et al., 2016).

SET covers the individual factors that affect knowledge sharing behaviours. However, SET ignores the role of self-efficacy, which is the main component of knowledge sharing behaviour. As mentioned earlier, higher levels of self-efficacy tend to make individuals more self-confident and motivated. Thus, the individual would pursue activities with more drive and passion while using cognitive resources to successfully execute a task (Bandura, 1999). Various researchers have empirically confirmed this concept (Chen et al., 2012; Tamjid et al., 2013; Tsai et al, 2010). Therefore, it can be concluded from the aforementioned findings from studies that self-efficacy has a strong influence on changing and affect an individual's behaviour (Cherian et al, 2013). Thus, the SCT has been integrated into the study to support the SET, which believed will support the pursue of knowledge sharing behaviour among nursing supervisors in online healthcare through social exchange and cognitive resources.

2.9 Individual Factors of Knowledge Sharing behaviour

In the process of knowledge sharing, individuals serve as both knowledge generators and knowledge receptors. Individuals generate knowledge by exchanging their ideas and experience through socialization. As a receptor of knowledge, individuals seek and interpret the knowledge before it is transferred to any repository (Nor, 2011). In this process, it indicates that sharing of knowledge depends on the conscious effort of an individual who has to set the ball rolling for knowledge to be either shared or hoarded. Prior researchers such as Cabrera et al. (2006), Sheng et al (2010) widely recognize the influence of individual factors on knowledge sharing. For instance, let us imagine a scenario where an employee comes to know about a work problem faced by a colleague.

The employee may have the solutions to the problems and may choose to share or not share the knowledge with colleagues. The decision to share the knowledge may be influenced by his or her personal beliefs on knowledge sharing. The example indicates that individuals play a pivotal role in the process of knowledge sharing. Ali et al (2016) posit that the knowledge management process and knowledge sharing will not be successful within an organization without the involvement of humans. Therefore, it is important to understand individual factors that influence individuals to share knowledge.

The influences of various individual factors that affect knowledge sharing have been widely emphasized by researchers such as (Cabrera et al., 2006; Sheng et al, 2010). Although the importance of individual personal beliefs has been stressed by (Lin, 2007). These have been often conceptualized as expected rewards, associations and contribution (Fullwood, 2016).

Social exchange assumes that employees participate in exchange behaviour in the hopes that the benefits will outweigh the costs (Liao, 2008). However, it was pointed out by Bock et al. (2005) that the motivations for social exchange cannot always be priced in a quantitative manner. Other factors such as ‘personal obligation, gratitude and trust’ come into play as well. According to this perception of social exchange, the benefits are more intrinsic with predictable connotations of the aforementioned factors (Kankanhalli et al., 2005).

Hsiu et al (2007) discovered that intrinsic motivators such as associations with others were significantly linked to knowledge sharing behaviour whilst extrinsic benefits such as organizational rewards did affect sharing. Expected contribution refers to a belief by employees that their knowledge sharing will result in enhanced organizational performance (Bock et al., 2005). And will gain confidence in their capability to provide knowledge that is valued by the organization (Fullwood, 2016).

The present research reviewed the literature to identify the main factors that may affect knowledge sharing in online communities. Drawing from the identified factors displayed in the studies in Table 2.2, it was noticed that some factors are used more frequently than others, due to their strong impacts. These factors have been proven to facilitate the knowledge sharing behaviours of individuals in different contexts such as healthcare, education, and SMEs. Thus, such factors are essential to be investigated in other work settings and countries. From 170 reviewed articles 31 was the most relevant to the current study. Therefore, the variables were selected for the context of the framework. The proposed model and factors were evaluated through expert's panel including four academic experts in knowledge management field.

From 15 of the 31 reviewed articles, trust was considered to be one of the most frequently utilized factors, as it was revealed to display a constructive outcome on raising knowledge sharing (Ali & Dominic 2016; Chai et al., 2014; Dereje et al., 2016; Jinyang 2015; Ma et al. 2014; Park & Lee 2014; Zhang et al. 2017; Ologbo & Knight 2015). From the review it could be noticed that the second most studied factor was reciprocity (Abzari et al., 2016; Chai et al., 2014; Goh and Sandhu, 2017; Hassandoust et al., 2011; Jinyang, 2015; Ma et al., 2014; Park & Lee, 2014; Xi Zhang et al., 2014; Zhang et al., 2017), and shown to have a positive correlation to KS. Next were the self-efficacy (Ologbo & Knight, 2015; Zhang et al., 2014; Zhang et al., 2017; Zhang et al., 2017a), and shown to have a positive effect to KS, and followed by reputation (Zhang et al., 2014;Yan et al., 2016; Zhang et al., 2017; Zhang et al., 2017b) which shown to have a positive correlation to knowledge sharing.

Table 2.2 Studies of individual's factors in knowledge sharing

No	Authors by years	Individual's factors in knowledge sharing																	
		Ability	Willingness	Attitude	Subjective Norm	Knowledge Assets	Reciprocity	Behavioural Control	Presentism	Reputation	Servant Leadership	Trust	Self-efficacy	Altruism	Affiliation	Empathy	Reward	User satisfaction	Network Centrality
1	Hassandoust et al. (2011)				X							X							
2	Chennamaneni et al. (2012)			X	X			X											
3	Alali and Salim. (2013)																	X	
4	Radaelli et al. (2014)	X																	
5	Hyun Lee and Hong. (2014)						X	X				X							
6	Park and Lee. (2014)											X							
7	Wu et al. (2013)						X					X							
8	Chai et al. (2014)						X					X							
9	Xi Zhang et al. (2014)						X			X			X						
10	Faizuniah Pangil. (2014)											X							

Table 2.2: Studies of individual's factors in knowledge sharing (continue)

No	Authors by years	Individual's factors in knowledge sharing																	
		Ability	Willingness	Attitude	Subjective Norm	Knowledge Assets	Reciprocity	Behavioural Control	Presentism	Reputation	Servant Leadership	Trust	Self-efficacy	Altruism	Affiliation	Empathy	Reward	User satisfaction	Network Centrality
11	Hejase et al. (2014)											X							
12	Khosravi and Ahmad. (2014)	X																	
13	Ologbo and Knight. (2015)											X	X						
14	Jinyang. (2015)		X				X					X		X					
15	Shaari et al. (2015)								X					X					
16	Kim et al. (2015)																		
17	House et al. (2015)											X							
18	Mafabi et al. (2017)			X	X			X											
19	Mura et al. (2016)					X													
20	McGrane. (2016)																X		
21	Jung-Chieh Lee et al. (2016)																		
22	Ali and Dominic. (2016)						X					X							

Table 2.2: Studies of individual's factors in knowledge sharing (continue)

No	Authors by years	Individual's factors in knowledge sharing																	
		Ability	Willingness	Attitude	Subjective Norm	Knowledge Assets	Reciprocity	Behavioural Control	Presentism	Reputation	Servant Leadership	Trust	Self-efficacy	Altruism	Affiliation	Empathy	Reward	User satisfaction	Network Centrality
23	Tuan. (2016)										X								
24	Rutten et al. (2016)											X							
25	Roba et al. (2016)											X					X		
26	Lo (2015)																X		X
27	Yan et al. (2016)									X									
28	Zhang et al.(2017)						X			X		X	X	X		X			
29	Goh and Sandhu. (2017)						X								X				
30	Wei-Li Wu & LEE. (2017)																		
31	Zhang et al. (2017b)						X			X			X	X		X			
	Total	2	1	2	3	1	9	3	1	4	1	14	4	4	1	2	3	1	1

Table 2.2 presents the literature results for 31 different studies, as well as the factors and the method being used. Table 2.2 showed that some factors such as trust, reciprocity, reputation, and self-efficacy are commonly used which have a positive effect on knowledge sharing in several contexts; including, healthcare, education, and SMEs domains. According to SET, individuals who exchange knowledge, believe that such behaviour of knowledge sharing will be reciprocated with positive behaviours or benefits. SET also suggests that knowledge givers, exchange information, only if the expected valuable knowledge is returned (Zafer, 2017). However, altruism is opposite of the SET criteria, which is demonstrated in sharing insights but not expecting reciprocation (Esmaeilzadeh et al., 2015). Due to this reason, this factor is excluded from the selection of factors for KS behaviour. One of the factors that received little attention from the researcher is the ability to share. In fact, this has been used only twice, despite having a strong significant impact on knowledge sharing (Khosravi et al., 2014; Radaelli et al., 2014). Meanwhile, the factors of trust, reciprocity, reputation, and ability to share were selected as they were found to be supported both by literatures and SET, respectively. The following section presents the development of research hypotheses for every single relationship.

2.10 Development Hypotheses

2.10.1 Trust and Knowledge Sharing Behaviour

Trust is defined as the act of becoming open to people based on beneficial recognition of their actions (Gambetta, 2000). When people trust one another, they believe that another individual will not cause them any harm. Inkpen & Tsang (2005) demonstrated that trust is the most cost-effective technique by which to instil knowledge sharing within an organization. When there is trust among organization members, there naturally tends to be higher levels of cooperation and commitment among people (Molm, 2003). Furthermore, interpersonal trust (i.e. trust among people) has been shown to contribute to the advancement of knowledge sharing among employees (Nonaka & Takeuchi, 1995). Further, the levels of risk and uncertainty associated with hidden knowledge are reduced

by interpersonal trust (Foos et al; 2006). The above theoretical and empirical evidence implies that people tend to be motivated to share their knowledge when they perceive recipients to be trustworthy. Thus, greater levels of trust could lead to higher occurrences of knowledge sharing because individuals do not expect negative outcomes from those they trust and share their knowledge with (Jinyang, 2015a; Gansiniec, 2017; Zafer, 2017).

The difficulties involved in knowledge sharing were detailed by Gupta & Govindarajan (2000), who describe it as a "sickness" of knowledge. It was further stated that sickness abounds because of the cause-effect uncertainty of knowledge shared as well as the potentially difficult bond between the individual giving knowledge and the individual receiving it. Their research further concludes that a stronger relationship, with trust at its foundation between the knowledge donor (one giving knowledge) and knowledge collector (one receiving knowledge), could lead to a better knowledge sharing process. It was suggested by various researchers that if trust exists, individuals are more prone to share useful knowledge (Kouzes & Posner, 2006).

Schoorman, Mayer, & Davis (2007), argued that individuals "are more willing to listen to and absorb other's knowledge". Jain et al. (2015) proposed that a higher level of trust strengthens emotional bonding among individuals because the individuals are better able to understand one another and perceptions of unclear actions, doubt or the like on the part of the perceived individual's behaviour are likely to be avoided. Consequently, an individual with more trust tends to be more likely to participate in knowledge sharing (Cheng et al., 2008; Huang et al., 2008). Furthermore, Hu et al (2012) found that trust is an important factor in sharing knowledge among team members, and increasing trust can increase communication in order to share experiences.

When there is trust among organization members, there naturally tends to be higher levels of cooperation and commitment (Molm, 2003). Furthermore, interpersonal trust (i.e. trust among people) has been shown to contribute to the advancement of knowledge sharing among employees (Rutten et al., 2016). It was even shown by Foos et al. (2006) that the levels of risk and uncertainty associated with hidden knowledge are reduced by interpersonal trust. It could be implied from past findings that people tend to be motivated to share their knowledge when they perceive recipients to be trustworthy. Thus, greater

levels of trust could lead to higher occurrences of knowledge sharing since individuals tend to not expect negative outcomes from those they trust and share their knowledge with (Jinyang, 2015a; Gansiniec, 2017; Zafer, 2017).

It is envisaged that trust could add value in the hospital to encourage and motivate nursing supervisors to use and share their knowledge in online healthcare communities. Thus, the overall discussion reveals that trust is an important element of knowledge sharing; therefore, the author presumes that trust can facilitate knowledge sharing behaviour among nursing supervisors in online health communities. Accordingly, the following hypothesis has been developed:

H1: Trust will have a positive significant effect on knowledge sharing behaviour in online healthcare communities.

2.10.2 Reciprocity and Knowledge Sharing Behaviour

Reciprocity refers to the perceived notion that a particular action calls for an equivalent or almost equivalent exchange to the action being made (Davenport et al., 2002). Thus, there is a tendency to expect certain rewards for one's actions, especially for knowledge sharing, as resources such as knowledge, energy and time are consumed in order to engage in any knowledge sharing activity (Lo, 2015; Serenk et al., 2016). Researchers have investigated the concept of reciprocity and attempted to define the concept. For example, Strong et al (2008) proposed that mutual reciprocity is one of the key enablers of knowledge sharing. Blau (1964) proposed that reciprocity refers to "actions that are contingent on rewarding reactions from others and that cease when these expected reactions are not forthcoming". Bock & Kim (2002) stated that "Individuals who are involved in virtual teams would share their knowledge when they perceive a commensurate behaviour from the other partner". Furthermore, researchers have found that knowledge sharing within communities of practice is enhanced through individual reciprocity behaviour Wasko & Faraj (2005). Chiu et al. (2006) conclude that reciprocity has a positive significant relationship with knowledge sharing behaviour. In the context of knowledge sharing, the donor of the knowledge will decide whether the recipient

possesses the potential of giving back a positive outcome. Thus, individuals tend to weigh others' capabilities before they exhibit a certain type of behaviour.

The act of exchange may count as a type of loss or gain as well. In the context of knowledge sharing, individuals may receive knowledge and information from online communities but are uncertain if the knowledge they share will be reciprocated (Chang & Chuang, 2011). As a dictate of human nature, when individuals feel that their social relationships are equal and likely to be reciprocated, the interaction among these individuals would also likely be as with equals (Pagliari et al., 2007). In other words, knowledge owners would only sacrifice their resource costs (i.e. time and effort) to share knowledge if they perceive that the knowledge receivers would, in the future, reciprocate and share knowledge back with them when they become the knowledge owners. Thus, with the concept of reciprocity, knowledge sharing is achieved (Jinyang, 2015b). The concept of reciprocity lies at the core of the social exchange theory, which proposes that individuals engaged in social activities and relationships tend to contribute back to society (Jinyang, 2015b). Reciprocity, as mentioned earlier, refers mainly to expectations of future benefits after an individual has contributed (Feng et al., 2016).

Reciprocity may have the ability to provide an effective incentive for knowledge sharing activities and foster a knowledge sharing environment for future organizational benefits (Bock et al., 2005; Feng et al., 2016; Moghavvemi et al., 2017). Members of societies and organizations in favour of reciprocity are convinced that knowledge sharing may improve their respective social status (Bock et al., 2005; Zhao et al., 2016). Health practitioners also offer knowledge in the hopes that their trust will lead to patients building a reciprocal relationship with them (Alaszewski et al., 2003). However, in exchange, practitioners expect valuable patient-reported data from patients. Within OHC, many members and participants engage in online interactions as a way of receiving emotional support for their serious and often chronic diseases (Pagliari et al., 2007).

Within the organizational context, employees would be willing to share knowledge, which takes up time and effort, if they expect that the recipients of knowledge sharing will respond similarly. In other words, by sharing knowledge with others, the individual employee gains a reputation as 'knowledge owner' and expects to receive information in

return in the future. Past studies have shown that members engaging in online knowledge sharing strongly utilize reciprocity, whereby each interaction is expected to carry a reward or benefit later on (Kollock, 1999; Wasko & Faraj, 2000). Particularly, knowledge sharing interactions rely greatly on reciprocity for successful implementation (Bock et al., 2005). Reciprocity itself is reliant on the individual's judgment on the outcome of knowledge sharing behaviour (Chiu et al., 2006). Thus, engagement in knowledge sharing activities relies heavily on the expected rewards from each interaction (Chai et al., 2011; Wasko & Faraj, 2005).

Thus, because reciprocity is strongly linked to knowledge sharing, this especially applies to OHC. Past studies demonstrated a positive correlation between the quantity and quality of knowledge sharing with regards to reciprocity (Chang et al., 2011; Chiu et al., 2006). In particular, Hau et al. (2013) explored the concept of reciprocity, stating that it is a crucial element in knowledge sharing. Past studies also concur with this notion, whereby an increase in reciprocity will result in greater performance and knowledge sharing activities (Alireza et al., 2013; Assegaff, 2016; Bashir et al., 2014).

It is already well-known that knowledge sharing has its advantages not only for the organization in which it is implemented but also for individuals who work in these organizations. Thus, according to social exchange theory, individuals who receive high support from others may feel more satisfied and do not limit their knowledge sharing as a kind of positive reciprocity in supporting each other (Hashim et al., 2015; Kim et al., 2015; Yen, 2009). Previous research shows that reciprocity affects knowledge sharing, and it becomes better to share knowledge while individuals have reciprocity (Chang et al., 2011). Previous studies have mentioned that when individuals have reciprocity, it affects positive knowledge sharing of employees (Lin, 2007a). This implies that Reciprocity is related to the give and take of knowledge and has an impact on knowledge sharing. Through this, employees are able to share knowledge and prove it is a worthwhile activity through transferring and taking of the knowledge (Ipe, 2003).

As a give and take process, when an employee shares important knowledge to others, the other employee is bound to share knowledge of equal importance. According to Hau et al. (2013), reciprocity is based on a knowledge exchange relationship, and it will

influence other employees to share knowledge. Following the theoretical and empirical reasoning, the researcher argues that the nursing supervisor shares important knowledge to others in online healthcare communities. Thus, when they share knowledge, the recipient of the knowledge is expected to reciprocate with the same and equal amount of sharing. Therefore, the author expects that reciprocity is an important element of knowledge sharing behaviour, especially in OHC. As such the following hypothesis has been developed:

H2: Reciprocity will have a positive significant effect on knowledge sharing behaviour in online healthcare communities.

2.10.3 Reputation and Knowledge Sharing Behaviour

Reputation is defined as the perception of others, which aids in establishing social status (Safa et al., 2016). Past studies have shown that knowledge sharing is greatly dependent on the established reputation as a key motivator (Jin et al., 2016; Zhang Deng et al., 2017a). To be more precise, there is a tendency to share knowledge only if there is a perceived benefit in the form of increased reputation. Thus, reputation is a crucial element for such practitioners in healthcare because individuals seeking health advice rely heavily on word-of-mouth advice during the selection of their practitioners, which depends greatly on the practitioner's reputation (Ramsaran et al., 2005). Consequently, health practitioners share a great deal of knowledge in advancing reputation for the sake of their professions (Yan et al., 2016b).

In the case of OHC, members choose to be involved and strengthen their reputations by exhibiting ample knowledge related to health, medicine, diseases, and treatments respectively. Reputation has been identified as a crucial element of knowledge sharing as well. It is especially vital in healthcare due to the fact that individuals depend greatly on word-of-mouth advice with regards to the selection of healthcare practitioners (Ramsaran et al., 2005). Therefore, health practitioners exchange knowledge in order to augment their reputation, which further benefits their respective professions. However, regular members of OHC tend to remain anonymous while still seeking to build on their positive

online status and reputation, which may further bring rewards and benefits in the shape of certain privileges (Yan et al., 2016b; Zhang et al., 2017a).

Reputations are built slowly; however, in OHC, particularly disgruntled patients can release negative emotions such as stress and complaints about minor shortcomings. As a result, online rating sites may tarnish the reputation of physicians (Jain, 2010). This is one of the reasons patients usually look at the overall rating of the community and the advisor. Health practitioners are sometimes also eager to enhance their reputation and online reputation (Zhang et al., 2017b), which also increases the number of outpatients offline. Addressing questions and providing treatment advice to emphasize the accomplishments of health professionals is one method of building a positive online reputation. Thus, health practitioners engage in knowledge sharing for the sake of both the patients and their professions (Zhang et al., 2017b).

While monetary rewards are well-desired, reputation itself is a motivation sought by employees (Jeppesen et al., 2006). Reputation may assist individuals to receive and upkeep their social status in communities (Jones et al., 1997; Marett et al., 2009). This is so because they desire that others view them as experts in the field (Davenport et al., 2002). Past studies have shown that establishing one's reputation is a major incentive for knowledge sharing (Davenport et al., 1998), which may aid individuals in viewing knowledge sharing in a positive light (Hsu et al., 2008). If a particular member's reputation increases, the feeling of involvement within a community rises as well (Xu et al., 2009). Studies have also substantiated the notion that reputation has a positive correlation to knowledge sharing behaviours for community members of OHC (Yan et al., 2016a; Zhang et al., 2017a).

Due to the fact that social media records knowledge contribution rankings for members of OHC, the contributors become known to other community members, thereby increasing their reputation (Zhang et al., 2017a). Thus, persons posting who share information on OHC acquire increased reputation and may even be recognized as experts for a particular disease and treatment (Ba et al., 2001). This provides great motivation for posters to share knowledge and contribute (Phang et al., 2009).

Answering questions and providing treatment advice to highlight the accomplishments of a nursing supervisor in online healthcare communities is one strategy by which to develop a positive online reputation. Also, this could encourage nursing supervisors to be more willing to share knowledge to satisfy the needs of patients and to improve their professional status. Therefore, the author presumes that the nursing supervisor (for the sake of their reputation and status) would share more knowledge in online healthcare communities. Thus, the author proposes the following hypothesis:

H3: Reputation will have a positive significant effect on knowledge sharing behaviour in online healthcare communities.

2.10.4 Ability to Share and Knowledge Sharing Behaviour

The ability of organizations and individuals to share knowledge with each other is identified as one of the significant factors of organizational competitiveness. Past results have demonstrated that ability is a very relevant factor for knowledge sharing as well and that it affects engagement innovation work behaviours. The ability to share knowledge can be understood as the capability of employees to handle knowledge in various forms. With regards to innovation, it is a complex task, which involves knowledge being acquired, recombined, communicated and applied. The findings by Radaelli et al. (2014) indicated that two preconditions exist for individual knowledge sharing, which are employees' ability and opportunity (Hsiu et al., 2007; Spiller, 2016; Sun et al., 2014).

Knowledge sharing naturally leads to an increased state of knowledge within the organization, whereby knowledge is a valuable set or resource in the eyes of the organization. Furthermore, knowledge sharing also encourages discussions (Faizuniah Pangil, 2014). Knowledge sharing may be considered ability, whereby individuals who are 'able' to disseminate knowledge are seen as prospective individuals for innovation in the eyes of the organization (Zhou & Li, 2012). The relationship between knowledge sharing abilities and innovative abilities has not been established. Past research has touched upon the notion that innovative behaviour calls upon the same ability required to share knowledge as well, i.e. elaborating, recombining and translating hidden knowledge to new forms (Nonaka, 1994; Quintane et al., 2011; Smith et al., 2005). The new forms

may be utilized for innovating rather than elaborating, recombining and translating tacit knowledge into a comprehensible and effective form (Ipe, 2003; Reinholt et al., 2011; Siemsen et al., 2008; Szulanski, 1996; Sheng et al., 2010). In turn, when these employees go about their work within the organization with their knowledge sharing attitudes, there tends to be an exchange of information, opinions and experiences with other employees (Ford, 1996; Hülsheger et al., 2009; Kanter, 2000). Thus, the knowledge sharing ability provides the gap for attracting and involving other organizational stakeholders in potential individual and organizational innovation (Radaelli et al., 2014; Zhou & Li, 2012).

The author presumes that knowledge sharing behaviour can be improved and enhanced when the ability of nursing supervisors to share is applied in online healthcare communities. Furthermore, the researchers expect that knowledge sharing behaviour in nursing can be enhanced via their ability to share knowledge. Thus, the author proposes the following hypothesis:

H4: Ability to share will have a positive significant effect on knowledge sharing behaviour in online healthcare communities.

2.10.5 Knowledge Self-Efficacy

Knowledge self-efficacy is defined as the perception a person has about the value of his/her knowledge. Further, it is suggested that people who think their knowledge is valuable would be more likely to share greater amounts of knowledge (Shaari et al., 2015).

Knowledge self-efficacy, described as a function of self-beliefs with which individuals accomplish a particular work (Bandura, 1986), has a definite effect on people's emotional reactions and thought patterns. The associated perseverance of knowledge self-efficacy can lead to greater productivity and performance. Knowledge self-efficacy is a type of self-assessment which affects decisions on how an individual will behave and be motivated under tasks and level of effort asserted in the face of challenges. Past researchers have already linked knowledge self-efficacy to motivation and behaviour

(Bandura, 1986; Igbaria et al., 1995). Thus, those with higher levels of self-efficacy tend to perform better than those with lower levels (Zhao et al., 2005).

This Recently, the focus of the researchers has concentrated on knowledge self-efficacy. This has been implemented in areas of knowledge management in order to validate the effect of self-assessment, self-confidence, and motivation of individuals for knowledge sharing. Self-efficacy is highlighted as individual expectations of positive outcomes of behaviour since, if individuals doubt the capability to successfully complete the behaviour, the pursuance would be perceived as worthless.

Furthermore, the researcher has found that knowledge self-efficacy relates to the individual's level of confidence to complete a particular job (Constant et al., 1996). C. J. Chen & Hung. (2010) asserted that perceived self-efficacy plays an essential role to influence the motivation and behaviours of the individual. Thus, individuals who have high self-efficacy will be more likely to perform related behaviours than those with low self-efficacy (Alireza et al., 2013; Zhang Deng, et al., 2017b).

Knowledge self-efficacy is the degree of confidence in one's ability to provide knowledge that may be valuable to others (Kankanhalli et al. 2005; Spreitzer 1995). A person with high knowledge self-efficacy may believe answering questions is easy, especially those asked by novices (Wasko et al., 2000). Prior research suggests an individual with high knowledge self-efficacy will have powerful self-motivation (Bock & Kim 2002; Hsu et al. 2007), and such individuals may develop a more positive attitude toward knowledge sharing (Lin 2007). If an individual has a strong sense of knowledge self-efficacy, he or she will not have a problem to share. (Kankanhalli et al. 2005; Hui ett al., 2013). Since knowledge self-efficacy is an important element for knowledge sharing, the author presumes that it will moderate the effect of individual factors on knowledge sharing. Also, it is presumed that a person will be more likely to share knowledge if he or she believes in her or his abilities and also considers that knowledge sharing is easy. Thus, the researcher concludes that knowledge self-efficacy acts as the moderator in this study.

2.10.6 Knowledge Self-Efficacy and Knowledge Sharing Behaviour

Bandura, Adams, & Beyer (1977) express that self-efficacy is the degree of confidence placed in an individual when he or she is sharing knowledge. Another researcher confirms the same phenomena that knowledge self-efficacy is that level of confidence in an individual to disseminate knowledge that is valuable to all (Kankanhalli et al., 2005; Spreitzer, 1995). According to Wasko et al. (2005) an individual with high knowledge self-efficacy may feel happy answering the questions easily, specifically the questions from beginners. Consequently, such a person may develop a more positive behaviour towards the sharing of knowledge (Kankanhalli et al., 2005; Lai et al., 2013; Lin, 2007b).

The issue of self-efficacy has been examined as a moderator that restrains the effect of different individual factors on KS (Hsieh et al., 2013). Hsieh's study showed that knowledge self-efficacy can moderate relationships between reputation and enjoyment in helping others on the continued knowledge sharing intention. However, their study showed that with high knowledge self-efficacy, the receptivity and moral obligations were not supported. Therefore, it can be concluded that self-efficacy has a strong influence on an individual's behaviour (Cherian et al., 2013).

Thus, following the significance of knowledge self-efficacy in knowledge sharing, the researcher intends to investigate the moderating effect of self-efficacy on the relationship between individual factors and knowledge sharing behaviour. Therefore, the researcher presumes that when the level of knowledge self-efficacy is high, nursing supervisors are highly confident in their ability to provide valuable knowledge. In addition, their moral obligation should have a strong influence on knowledge-sharing behaviour in online healthcare communities. Furthermore, the author expects the effect of individual factors of trust, reciprocity, reputation, and ability to share on knowledge-sharing behaviour will become stronger when nursing supervisors acquire more knowledge self-efficacy in online healthcare communities. Accordingly, the researcher proposes the following hypotheses:

H5: Knowledge self-efficacy moderates the relationship between trust and knowledge sharing behaviour in online healthcare communities

H6: Knowledge self-efficacy moderates the relationship between reciprocity and knowledge sharing behaviour in online healthcare communities.

H7: Knowledge self-efficacy moderates the relationship between reputation and knowledge sharing behaviour in online healthcare communities.

H8: Knowledge self-efficacy moderates the relationship between the ability to share and knowledge sharing behaviour in online healthcare communities.

2.11 Research model

Research framework was defined as a conceptual model that elaborates the interrelationships among the variables considered to be parties in the situation being investigated. In addition, developing this framework helps hypothesize and test certain relationships between variables and improve understanding of the situation (Sekaran, 2003). Generally, a research framework consists of three types of variables: the dependent variable, which is known as the main variable: an independent variable or variables influencing the dependent variable; a moderating variable or variables exerting a strong contingent effect on the relationships between dependent and independent variables (Sekaran, 2003).

After reviewing the relevant literature and underlying theory, the research framework was developed. Figure 2.1. presents the framework developed for this study. The first component comprises the individual factors which are trust, reciprocity, reputation and ability to share as the independent variable. The second component is knowledge sharing behavoiur as the dependent variable. The last component is the knowledge self-efficacy as the moderator between individual factors and knowledge sharing behaviour. This research model has eight hypotheses, in which four formulated to measure the knowledge sharing behavior and remaining to test moderation effect knowledge self-efficacy. This framework is supported by two theories; Social Exchange Theory (SET) and Social Cognitive Theory (SCT). SET supports the individual factors which influence the knowledge sharing behaviours. While SCT relates to the knowledge self-efficacy.

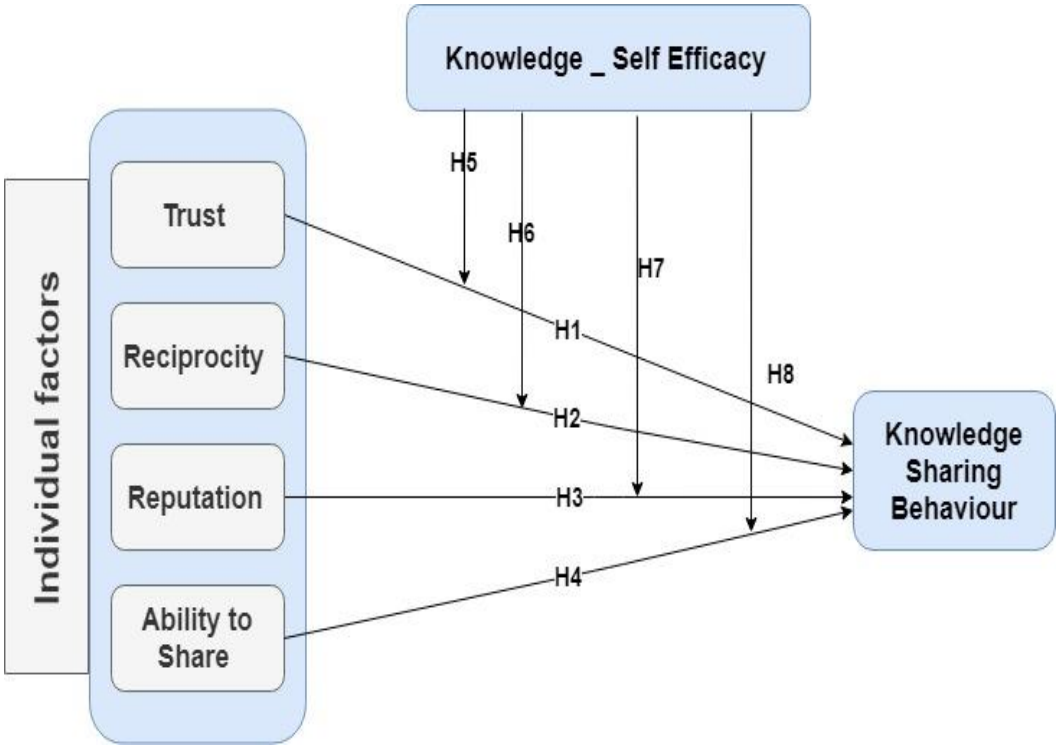


Figure 2. 1 Proposed Research Model

2.12 Summary

This chapter has presented the concepts that are related to knowledge sharing in online healthcare communities. This chapter has also enriched by explaining the theories and variables used in this study. The relationships between the studied variables and based on the underlying theory and literature review are explained and the framework and hypotheses have been developed to be tested in healthcare sectors in Jordan.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the steps and processes involved in conducting the empirical research. This chapter started by a discussion of the research approach of this study followed by research design to explain the methodology process required to achieve the research objectives. The issues of unit of analysis, research time horizon, population, sample technique, and sample size have all been explained. Furthermore, this chapter then continued with instrument design, its validation and a measure of reliability. Following this, the instrument translation and pilot study are all elaborated upon and determined. Moreover, data collection and data analysis from the study population was involved in order to answer the research questions and to present a better understanding of the relationship among research variables. The data were analyzed using SPSS 18 software and smart PLS 3.0 software, the latter of which specializes in structural equation modeling using partial least squares (PLS). A summary of the chapter is then presented at the end of this chapter.

3.2 Research Approach

Saunders et al. (2009) have stated that research may be conducted in two ways: a deductive approach and inductive approach respectively. Regarding the former approach (deductive), the researcher first develops a research theory upon which to build a hypothesis. Furthermore, this approach is designed to test the hypothesis and evaluate the particular result of the inquiry. Regarding the latter approach (inductive), the researcher develops and formulates a theory in which data is collected and analyzed. The present study follows the deductive approach within which the author has developed research hypotheses stemming from theories. These hypotheses are tested by way of employing data collection and analysis.

In another classification proposed by Sekaran & Bougie (2016), research may be classified based on various factors. Firstly, it may be classified according to the purpose of study, classifying research as either: exploratory; descriptive; hypothesis testing; or case study analysis. Secondly, it may be classified according to the type of investigation: causal versus correlation. Thirdly, it may be classified according to a unit of analysis (individuals, dyads, groups, organizations, cultures). Lastly, it may be classified according to the time horizon of study: cross-sectional versus longitudinal.

However, the presented study was classified as a descriptive where the phenomenon and theoretical understanding have been elaborated to measure and evaluate the research hypothesis (Sekaran & Bougie (2003)). A study by Creswell (2012) reported that descriptive studies enable the researchers to, specifically: summarize overall trends and patterns in the data; provide information regarding the diversity of scores; and clarify where each score stands in comparison with all the others.

A regression study is employed when the researchers consider highlighting important factors related to the problem and investigated variables. Thus, the present research investigates effects of individual factors of knowledge sharing behaviour in online healthcare communities by investigating the perspectives of nursing supervisors.

3.3 Research Design

In order to collect and analyze data to answer research questions, a specific research tool needs to be 'designed' to provide directions to conduct the testing. This process, formally called 'research design', comprises techniques for measuring study concepts, participants, sample size, data collection and analysis techniques, as well as a method of evaluating results which would lead to answering proposed research questions. Ultimately, the objectives of solving the problem must be fulfilled (John W Creswell, 2008).

Classification of research design includes quantitative research, qualitative research, and mixed-method research (Creswell, 2008; Saunders et al., 2009). The first type, quantitative research, seeks to focus on collecting and analyzing numerical data and

concentrating on measuring the scale, range, and frequencies of a particular situation. To elaborate, this research type highlights numeric data collection by employing a particular instrument such as a questionnaire, numeric data analysis by way of several procedures such as graphs and statistics generating numerical data (Creswell, 2008; Saunders et al., 2009). The second type, qualitative research, is a subjective research type which seeks to examine and reflect on the intangible characteristics of an area of research (Monaco & Neville, 2007). There is also an increased emphasis on non-numeric data collection by employing techniques such as interviews, surveys and such (Saunders et al., 2009). The third type, mixed-method research, combines characteristics of the aforementioned two types (Onwuegbuzie & Johnson, 2004).

The present study utilizes quantitative research, due to the fact that the research questions require measuring variables, assessing the effects of variables and testing the formulated theory (Creswell, 2012). Further sections seek to define the study sample, instrument, data collection technique, and data analysis strategy, to ensure that the data in numbers is accurate, and that research concepts and common laws are used to justify the causality effect of the social phenomenon under study. The role of a researcher here is to follow rules of objectivity, non-interaction, value, and non-bias which should not affect the result of the research and analysis. The researcher used the panoramic considerable sample for validation of the theory and to come up with a conclusion that can be generalized (Kreuger & Neuman, 2006). The researcher has adopted the hypothetical deductive method by Sekaran & Bougie (2016), within which systematic steps have been followed according to Figure 3.1. This illustrates the methodological phases followed by the researcher.

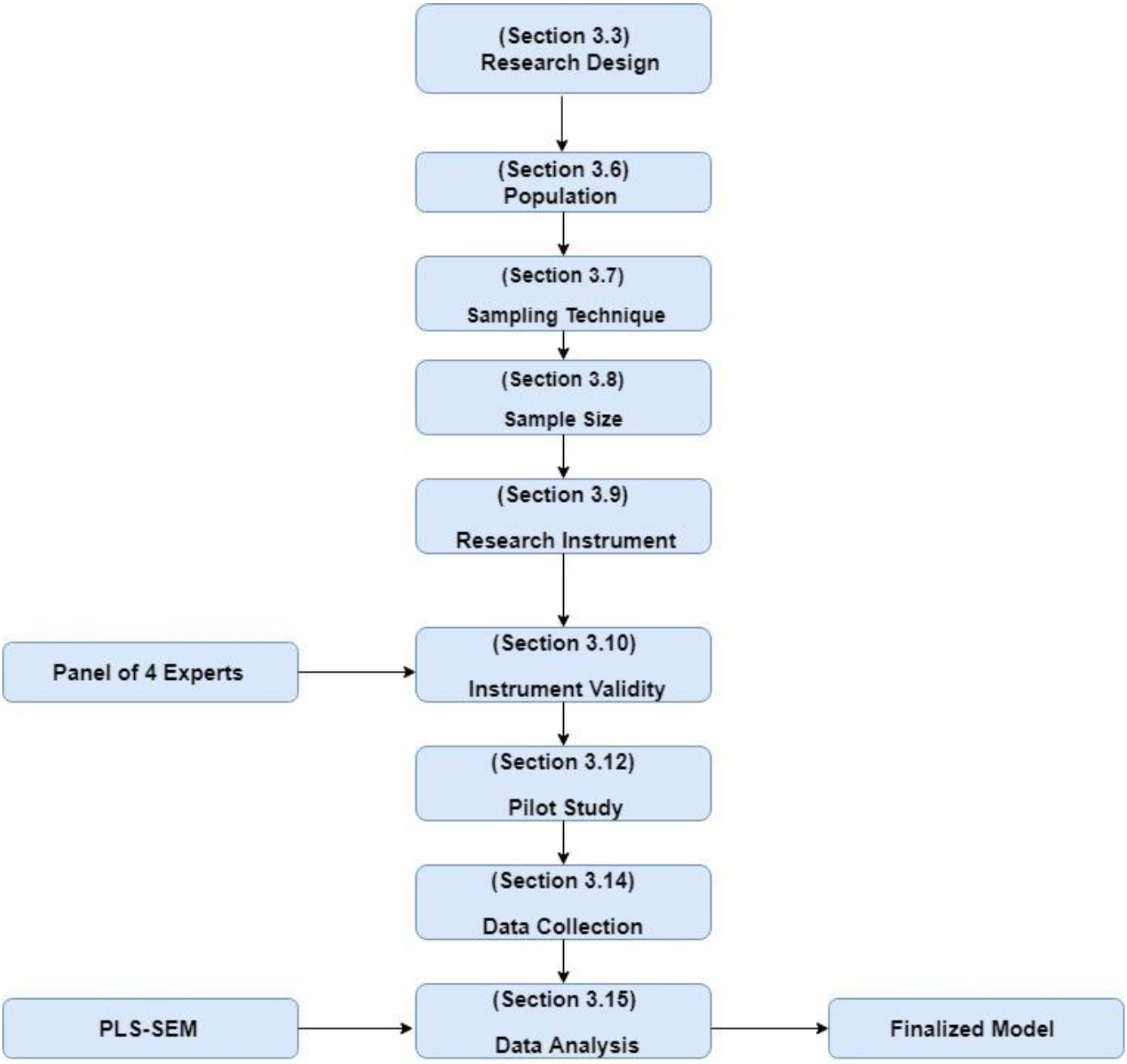


Figure 3.1 Methodological Phase

3.4 Unit of Analysis

Unit of analysis is the foundation of data upon which individuals are described (Sultan et al., 2013). A unit of analysis was described by Sekaran & Bougie (2016) as the 'level of aggregation of the data collected by the researcher. Furthermore, Sekaran & Bougie (2016) went further to suggest three main types of units of analysis: individual, dyads, or groups. For the first type, individuals as the unit of analysis take place when the researcher targets organizational employees. For the second type, dyads as the unit of analysis take place when the researcher seeks to examine interactions between two individuals or two groups. For the third and last type, groups as the unit of analysis take place when the researcher is interested in studying organizational groups. Thus, the unit of analysis for the present study is the first type discussed: individuals. To elaborate, for this type, nursing supervisors of departments in private hospitals of Amman, Jordan were chosen as the main data sources for the research.

3.5 Research Time Horizon

The time horizon of a research should be one of the first steps a researcher takes to define before proceeding to conduct any type of empirical research. The researcher should first attempt to determine whether to employ either a time horizon which is cross-sectional or longitudinal (Saunders et al., 2009). Sekaran & Bougie (2016) stated that a cross-sectional study may be employed only once over the course of days, weeks or months. On the other hand, the longitudinal study may also take place more than at one point in time, depending on whether it is related to the people or phenomena. By way of an example, a researcher may wish to gather data at two different points within time to highlight changes in employees' behaviour in particular circumstances, For the present study, based on the research objectives and goals (as well as to facilitate the respondent's accessibility), the most appropriate type is the cross-sectional type. In this study, data was collected during the period from May 2018 until July 2018.

3.6 Population of the Study

Sekaran & Bougie (2016) formerly defined "study population" as an entire group of people and events the researcher wishes to investigate. Furthermore, it is defined by a group of people or organizations bearing common characteristics which may be of interest to the research area in question (Creswell, 2008).The official website for the Ministry of Health in Jordan (Ministry of Health in Jordan, 2018) illustrates that there are 104 hospitals in Jordan subdivided into three categories: government, military, and private hospitals respectively. The statistic is also supported by the Private Hospitals Association in Jordan (Private Hospitals Association, 2018), stating that there are 68 private hospitals in Jordan, 38 of which are located in the capital city Amman. For the purposes of the study goals of the present research, the study population in the present study comprise nursing supervisors of private hospitals operating in Amman, Jordan. Out of twelve cities, the Amman region has 38 operating private hospitals, which is 55% of the total number of private hospitals as compared to the total number of private hospitals in Jordan. Figure 3.2 shows the total number of private hospitals in Jordan.

Figure 3.2 Location of Study

For the present research's goals, the study population in the present study comprise nursing supervisors of private hospitals operating in Jordan. Table 3.1 shows the total number of private hospitals in Jordan.

Table 3.1 Representation of Private Hospitals

NO	City name	Number of private hospitals
1	Amman	38
2	Zarqa	4
3	Irbid	6
4	Madaba	3
5	Karak	3
6	Aqaba	2
7	Mafrak	2
8	Balqa	3
9	Ajlun	2
10	Maan	1
11	Jerash	3
12	Tefillah	1
	Total Number	68

This study took place in Amman, the capital city of Jordan. The country of Jordan is located between the Arab Mashreq and the Arabian Peninsula, bordered on the north by the Syrian Arab Republic, in the east and south by Saudi Arabia and Iraq, on the west by Palestine. There are many reasons for focusing the research on Amman, with some of them being as follows: 1) The city of Amman is considered as the most populated compared to other cities; 2) The majority of the private hospitals in Jordan are in the capital city, Amman; 3) The private hospitals in Amman are considered as the most important hospitals regarding hospital capacity and the high numbers of medical tourism in this city. Figure 3.2 below shows the interesting strategic location.

As shown in Table 3.2 following, there are 510 departments identified in private hospitals in Amman. The researcher confirms the total number of participating hospitals and nursing supervisors in the next phase. Table 3.2 illustrates hospitals in Amman together with the number of departments.

Table 3.2 Private Hospitals in Amman

NO	Hospital name in Amman	Departments
1	Abdulhadi General Hospital	10
2	Al Ahli Hospital	23
3	Al Amal Maternity Hospital	7
4	Al Bayader Hospital	13
5	Al Gardens Hospital	31
6	Al Haramain Speciality Hospital	11
7	Al Hayat General Hospital	12
8	Al Khalidi Medical Center	17
9	Al Maqased Charity Hospital	8
10	Al Mowasah Hospital	11
11	Alrashid Hospital Center	13
12	Amman Hospital	16
13	Aqsa Hospital	4
14	Arab Medical Center	19
15	Dar Al Salam Hospital	8
16	Dr. Ahmad Al Hamaideh Hospital	7
17	Essra Hospital	14
18	Eye Specialty Hospital	9
19	Farah Medical Campus	8
20	Hanan General Hospital	10
21	Hiba Hospital	9
22	Ibn Al Haytham Hospital	19
23	Islamic Amman Hospital	20
24	Istiklal Hospital	15
25	Istishari Hospital	14
26	Italian Hospital	19
27	Jabal Amman Hospital	6
28	Jordan Hospital	15
29	King Hussein Cancer Center	17
30	Luzmila Hospital	18
31	Marka Islamic Specialty Hospital	6
32	Middle East Eye Hospital	12

Table 3.3 Private Hospitals in Amman (Continue)

33	Palestine Hospital	15
34	Philadelphia Hospital	5
35	Royal Hospital	10
36	Shamisani Hospital	15
37	Specialty Hospital	38
38	Tlaa Al Ali Hospital	6
	Total number of Departments	510

The reliance of researchers on private hospitals is rooted in these institutions having high technological capabilities as well as support and cooperation to be involved in the present study. In addition, these hospitals were found to be more cooperative in conducting research than other public hospitals located in Jordan. It is also important to mention that the number of public hospitals is considered low compared to the private ones. Further, more customers tend to focus on private hospitals in Jordan (Dammaj et al., 20 16). Hence, the researcher selected private hospitals rather than public ones so as to be able to represent the population of nursing supervisors in Jordan.

On the other hand, nursing supervisors in private hospitals are the respondents of this study. This particular sample was chosen because studies have shown that nursing staff are more likely to carry out interpersonal interventions and share knowledge; whereas physicians are mainly concerned with technical intervention in order to optimize the outcome of medical services (Jarrar et al., 2018). In any hospital, nurses are in the majority and the maximum number of medical teams include nursing staff whose performance influences the overall development of the hospital (Lin, 2014). Therefore, this study has conducted a survey of nursing supervisors in Jordanian private hospitals to explore individual behaviour on knowledge sharing in online communities with knowledge self-efficacy as a moderator.

According to the website of (Ministry of Health in Jordan, 2018), the targeted number of nursing supervisors was calculated from among the private hospitals used to identify the population of the study. The sample size was selected (337) from the (22) private hospitals in Amman (Jordan), as shown in Table (3.4) below.

Table 3.4 The twenty-two selected hospitals

No.	Hospital name in Amman	Number of selected nursing supervisors
1	Abdulhadi General Hospital	10
2	Al Ahli Hospital	23
3	Al Bayader Hospital	13
4	Al Gardens Hospital	31
5	Al Haramain Speciality Hospital	16
6	Al Hayat General Hospital	12
7	Al Khalidi Medical Center	17
8	Arab Medical Center	20
9	Dar Al Salam Hospital	10
10	Eye Specialty Hospital	10
11	Farah Medical Campus	15
12	Islamic Amman Hospital	20
13	Istishari Hospital	14
14	Al khansa Hospital	15
15	Jabal Amman Hospital	15
16	Luzmila Hospital	18
17	Marka Islamic Specialty Hospital	13
18	Middle East Eye Hospital	12
19	Palestine Hospital	15
20	Philadelphia Hospital	13
21	Royal Hospital	10
22	Shamisani Hospital	15
	Total	337

3.7 Sampling Technique

The sample was defined as the subgroup of the population selected under investigation (Sekaran et al., 2016). It was also indicated that the sample is a sub-group of the target population the researcher seeks to study for generalizing the population to be studied (Creswell, 2008). Furthermore, sampling techniques may either be ‘probability sampling techniques’ or ‘non-probability sampling techniques. This can be explained as follows:, probability sampling techniques (if the researcher realizes the actual number of people in the population); non- probability sampling techniques (if the researcher does not realize the actual number of people in the population) (Sekaran et al., 2016).

In order to select the participants out of the targeted population, a census technique was used in the present study. The census technique is defined as aiming the whole population in quantitative studies, which contrasts with the sampling method (Creswell, 2012).

While the census method studies the entire population to attain accurate information, the sampling method, on the other hand, includes selecting a number of subjects from the total population to determine the sample size of the study (Creswell, 2012; Srivastava et al., 1989). According to Srivastava et al. (1989), the census sampling method is appropriate for collecting data from every individual in the population, and therefore diverse qualities of the whole population are amassed in order to be discussed and analysed. In the present research, the targeted population was 337 nursing supervisors and also the required sample size for structural equation modelling analysis was n=250. Accordingly, the whole target population (337 nursing supervisors working in the identified 22 hospitals) was given the opportunity to contribute in the questionnaire.

3.8 Sample Size

Hair,.et al (2016) has mentioned that a 'sample' refers to a selection of individuals and elements chosen from a greater population. Chosen sample individuals should ideally represent the population holistically. Appropriate sample selection should reflect differences and similarities identified in the population in order to ensure that making inferences is feasible from a small sample of the large population. In the context of the current study, using SEM analysis with less than 100 sample sizes may be defective and may encounter some technical problems (Kline, 2005). A larger sample size (more than 200) is highly recommended by the researchers. For example, Kline (2005) suggests 10:1 ratio of a number of the case to the number of free parameters. Since in this research the total number of items was 25, therefore the optimum number of sample for Structural Equation Modelling was 250.

Furthermore, the researcher followed the recommendations of Hair et al. (2016). The sample size determined by G*Power software package has been utilized to execute power analyses, which are focused on model setups. Since the software may provide too many settings and features for multiple applications and types of analysis, careful consideration must be placed into selecting those that are deemed appropriate. Researchers from multiple disciplines rely on this software to achieve the recommended sample size.

Many parameter settings were required to be adjusted before calculation of the sample size in G*Power software could be performed; the first being the statistical test type. As this research used the SEM approach, multiple linear regression statistical power analysis was employed (Cohen, 1992). The test family employed in this research was the t-test. Furthermore, the parameters used are defined below as shown in Figure 3.3:

- One-tail: as this research is considered as the use of directional hypotheses.
- $f^2 = 0.15$: as a medium effect size value
- Alpha error probability (p-value) = 0.05 (5% significant level)
- Power (1-β err prob) = 95% (Confidence level)

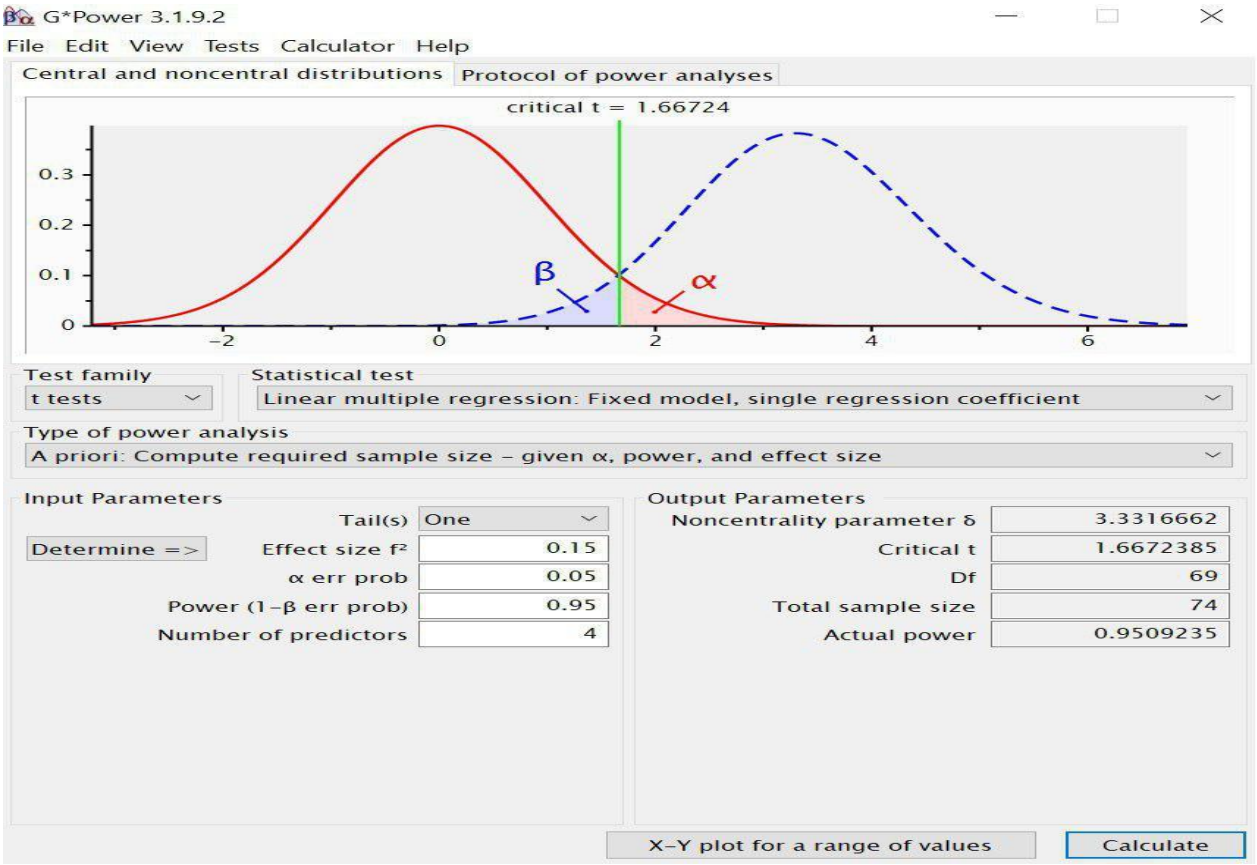


Figure 3.3 Sample size calculation (G*Power screenshot)

For the structural model, the sample size has been calculated based on Figure 3.3 It may be observed that a minimum sample size of 74 was required with four independent variables.

3.9 Research Instrument

The questionnaire is the heart of the survey, and it should be designed in accordance with best practices (Krosnick et al., 2015). The questionnaire design considers several issues including the research approach, research design, main variables, and sub-variables. Additionally, the questionnaire's items have been revised based on several directions recommended by the literature concerned (Krosnick et al., 2015; Lietz, 2010). The questionnaire is organized as follows: the first part comprises the demographic background of the respondents; following that, the remainder consists of the measurement of the constructs of this study.

The items of the instrument for each construct have been adapted with minor modifications in order to reflect the present study's aspects. The first construct is trust which is defined as belief of good intent, competence, and reliability of employees with respect to contributing and reusing knowledge (Mishra 1996; Putnam 1993). The trust construct items have been adapted from (Hassandoust et al., 2011), which include the following: (1) We were usually considerate of one another's feelings in online healthcare communities; (2) The people in online healthcare communities were friendly; (3) I could rely on those with whom I worked in online healthcare communities; and (4) Overall, the people in online health communities were trustworthy.

The second construct is reciprocity which is defined as belief of current sharing behaviour will cause future requests for knowledge to be easily satisfied by others (Davenport et al., 1998).The reciprocity construct items have been modified from (Zhang et al., 2017a), as the following: (1) When I share knowledge in online healthcare communities, I believe that my questions will be answered in the future; (2) I believe that other members whom I interact with would help me whenever I am in need in online healthcare communities; and (3) When I share my knowledge in online healthcare communities, I expect the other members to respond whenever I am in need.

The third construct is reputation which is defined as perception of an improvement in reputation and image due to sharing knowledge in the online community (Kankanhalli et al., 2005). The reputation construct items have been adapted from (Wasko et al., 2005;

Zhang et al., 2017a) , which include: (1) I earn respect from others by participating in online healthcare communities; (2) I feel that participation improves my status in online healthcare communities; (3) My participating in online healthcare communities can enhance my reputation in my professional field; and (4) I can earn some feedback or rewards through participation that represent my reputation and status in the online healthcare communities.

The fourth construct is ability to share, refers to the capabilities of conceiving and sharing meaning in different situations (Mohammadyari et al., 2014). The ability to share construct items have been adapted from (Armitage et al., 1999;Radaelli et al., 2014). These items are: (1) I am fully capable of sharing my knowledge with others in online healthcare communities; (2) If it depended only on me, I would exhaustively share my knowledge in online healthcare communities; (3) I am fully capable of articulating my knowledge in written or spoken form in online healthcare communities; (4) I believe I am fully capable of sharing my knowledge at any time in online healthcare communities; and (5) The knowledge I share with my colleagues would be very useful to them in online healthcare communities.

The fifth construct is knowledge self-efficacy refers to the degree of confidence in one's ability to provide knowledge that is valuable to others (Aslam et al., 2018). The knowledge self-efficacy construct items have been adapted from (Bock & Kim, 2002; Lu et al., 2006). These items are as follow: (1) My personal expertise will display its value if shared within the online healthcare communities; (2) My limited knowledge, even if shared, will generate little effect within the online healthcare communities; (3) I am confident that my knowledge sharing would improve work processes in the online healthcare communities; and (4) I am confident that my knowledge sharing would increase the productivity in the online healthcare communities.

The sixth construct is knowledge sharing behaviour which is defined as the process of knowledge exchange between individuals disperse their obtained knowledge, experiences, and skills to others and groups (Zhang et al., 2017a). The knowledge sharing behaviour construct items have been modified from (Lu et al., 2006). These include the following: (1) In daily work, I take the initiative to share my work-related knowledge to

my colleagues in online healthcare communities; (2) I keep my work experience and never share it out with others easily in online healthcare communities (reverse statement); (3) After learning new knowledge useful to work, I promote it to let more people learn it in online healthcare communities; (4) I actively use online healthcare community's sources available to share my knowledge; (5) So long as the other colleagues need it, I always tell whatever I know without any hoarding in online healthcare communities.

The scale is a mechanism or a tool by which respondents are distinguished as to how they differ from one another regarding the study's variables. In general, there are four basic types of scales, namely: nominal; ordinal; interval; and the ratio (Sekaran et al., 2016). The traditional Likert -type approach was employed to measure the constructs items. This scale was developed to scientifically measure attitudes and to evaluate the respondents' degree of approval with statements (Bertram, 2007; Johns, 2010). Additionally, the Likert approach can facilitate the task of completing the survey and help researchers to revise certain items in the questionnaire (Ware et al., 1983). The most common scale used by researchers is the 5-point Likert scale which ranges from "Strongly Agree" at the positive side to "Strongly Disagree" on the negative side (Creswell, 2013; Sekaran et al., 2016).

This reasoning is determined in that it is easy to construct in comparison to other scales, as well as being more reliable (Kothari, 2004). In addition, 5- point Likert is relatively simple for respondents to be able to complete the questionnaire. Therefore, the respondents were asked to evaluate the appropriateness to their companies of each statement on a 5-point scale, with the following values: 1 = Strongly Disagree; 2 = Disagree; 3= Neither Agree nor Disagree; 4= Agree; and 5= Strongly Agree. Tables 3.3 shows the adapted items for individual factors which include (trust, reciprocity, reputation, ability to share), knowledge self-efficacy and knowledge sharing behaviour. All adapted items have been shown together with the original resources of each item. The demographic information section utilized the interval for age, education level, experience, and Internet usage, while gender was on a nominal scale.

Table 3.3 Measurement items

Construct/Variable	Definition	Items	Source
Trust	The belief in the good intent, competence, and reliability of employees with respect to contributing and reusing knowledge (Saleh, 2017).	1. We were usually considerate of one another's feelings in online healthcare communities. 2. The people in online healthcare communities were friendly. 3. I could rely on those with whom I worked in online healthcare communities. 4. Overall, the people in online health communities were trustworthy.	(Jarvenpaa & Leidner, 1999). (Hassandoust et al., 2011)
Reciprocity	Belief that current sharing behaviour will cause future requests for knowledge to be easily satisfied by others (Zhang et al., 2017).	1. When I share knowledge in online healthcare communities, I believe that my questions will be answered in the future. 2. I believe that other members whom I interact with would help me whenever I am in need in online healthcare communities. 3. When I share my knowledge in online healthcare communities, I expect the other members to respond whenever I am in need.	(Bock et al., 2005) (Zhang et al., 2017a)

Table 3.3 Measurement items (Continue)

Construct/Variable	Definition	Items	Source
Reputation	Perception of an improvement in reputation and image due to sharing knowledge in the online community (Havakhor et al, 2018).	1. I earn respect from others by participating in online healthcare communities. 2. I feel that participation improves my status in online healthcare communities. 3. My participating in online healthcare communities can enhance my reputation in my professional field 4. I can earn some feedback or rewards through participation that represent my reputation and status in the online healthcare communities.	(Wasko & Faraj, 2005) (Zhang et al., 2017a)
Ability to Share	The ability of individuals to share knowledge with each other, this trait refers to capabilities of conceiving and sharing meaning in different situations (Mohammadyari et al., 2014).	1. I am fully capable of sharing my knowledge with others in online healthcare communities. 2. If it depended only on me, I would exhaustively share my knowledge in online healthcare communities. 3. I am fully capable of articulating my knowledge in written or spoken form in online healthcare communities. 4. I believe I am fully capable of sharing my knowledge at any time in online healthcare communities. 5. The knowledge I share with my colleagues would be very useful to them in online healthcare communities.	(Armitage et al., 1999) (Radaelli et al., 2014)

Table 3.3 Measurement items (Continue)

Construct/Variable	Definition	Items	Source
Knowledge Self-Efficacy	Knowledge Self-efficacy refers to the degree of confidence in one's ability to provide knowledge that is valuable to others (Aslam et al., 2018).	1. My personal expertise will display its value if shared within the online healthcare communities. 2. My limited knowledge, even if shared, will generate little effect within the online healthcare communities. 3. I am confident that my knowledge sharing would improve work processes in the online healthcare communities 4. I am confident that my knowledge sharing would increase the productivity in the online healthcare communities.	(Bock & Kim, 2002) (Lu et al., 2006)
Knowledge Sharing Behaviour	The process of involving knowledge exchange between individuals disperse their obtained knowledge, experiences, and skills to others and groups (Zhang et al., 2017a).	1. In daily work, I take the initiative to share my work-related knowledge to my colleagues in online healthcare communities. 2. I keep my work experience and never share it out with others easily in online healthcare communities. (R) 3. After learning new knowledge useful to work, I promote it to let more people learn it in online healthcare communities. 4. I actively use online healthcare community's sources available to share my knowledge. 5. So long as the other colleagues need it, I always tell whatever I know without any hoarding in online healthcare communities.	(Bock & Kim, 2001) (Lu et al., 2006a)

3.10 Content Validity

Kline (2011) elaborated upon several types of validity, including content validity, criterion-related validity, construct validity, and discriminant validity. Content validity is the extent to which the questionnaire provides adequate coverage of the topic concerned, this type of validity can be determined by expertise in the subject area (Kothari, 2004).

After preparing the questionnaire, the next step is to ensure and test the goodness of the questionnaire and verify that it is designed in a way that enables it to measure the research variables and reflects any relationships that may exist between them (Sekaran et al., 2009). The attribute of validity, therefore, indicates that respondents' scores are both significant and meaningful (Creswell, 2012).

As shown in Appendix A, the content validity form was designed to provide a specific decision concerning every single item. Four experts were involved in the validation of questionnaire items. Two expert's interviews were conducted face-to-face, and asked to fill in the provided form after a discussion took place. Another two experts were contacted via email. Appendix B shows the expert demographic information such as field, position, years of experience, and meeting period.

The constructs have been defined along with their related items in a single table with three decisions for each item (perfect match, moderate match, and poor match) to be filled by the experts. This provided the researcher with an insight into the validity of the proposed/adapted items to be utilized in the data collection procedure. The results from the expert evaluation, for the content validity of all items, showed that all proposed items for the research variables were accepted, however, comment received to add phrase "online healthcare communities" in the questionnaires. Based on this input, the researcher then made minor modifications on the questionnaires. The final version of questionnaires is shown in Appendix C.

3.11 Back-to-Back Translation

Back-to-back translation is required to ensure that the survey instrument is free of errors, incorrect wording or changing significance. The questionnaire was carried out in the local language and interpreted back by a specialist to ensure the reasonable and vocabulary identicalness of the survey items (Sekaran et al., 2016). Inadequately worded items would not simply prompt problems with reacting (replying), but could also promote issues amid the investigation or creating deceptive positive or negative outcomes. This could result in the research's reliability being threatened (Holmes et al. (2001); Malhotraet al. (2007) expressed that an inadequately-worded questionnaire prompts item non-reaction, which thereby expands the complex nature of information investigation. This demonstrates that translating the survey instrument by native local speakers is important by using back-to-back translation in order to ensure no changes have been made to the meaning of the items.

A linguistic lecturer who instructs at the Imam Abdurrahman Bin Faisal University in Saudi Arabia translated the questionnaire from English to Arabic. The translated questionnaire was checked by another linguistic lecturer to ensure that the meanings of the items remained as before being converted into English. Interpretation from Arabic to English was performed by another lecturer who is a lecturer at the Hashemite University in Jordan and it was guaranteed that he did not approach the first English survey. The final draft of the interpreted English adaptation was contrasted with the first draft to ensure that there were no mistakes and the survey was thoughtfully and vocabulary-proportional. It was necessary for the translated questionnaire to be tested by a pilot study to test the patterns of reaction towards recognizing any cultural bias and the dependability of survey items in estimating the corresponding factors (Malhotra et al., 2007).

3.12 Pilot Study

A pilot study is a scaled research that collects data from respondents similar to those participating in the actual study in order for it to be used in the full research (Zikmund et al., 2013). A pilot study is important to prevent uninterpretable results or unquantifiable responses, and hence saves time and money. Further, a pilot study helps to conceptualize or re-conceptualize the study aims, and can prepare an effective questionnaire for field

work and data analysis (Holmes et al., 2001). One of the main issues in reliability testing is checking the internal consistency of the scale in order to ensure that the scale's items match (Pallant, 2007) and are capable of measuring similar variables (Sekaran et al., 2016). The most popular indicator used for internal consistency reliability is Cronbach's alpha coefficient, in which the acceptable level of Cronbach's alpha coefficient is 0.70 (Pallant, 2007; Sekaran et al., 2016).

In addition, a pilot study was employed before administrating the questionnaire for a final data collection. This administrated for a small pool of sample in order to measure the reliability of the questionnaire used before proceeding to the final study. In the final study of the pilot, the study sample was excluded from the main study sample; the sample size of the pilot study must be excluded from the main study sample to render it more reliable to fit the model.

The data from the nursing supervisors of private hospitals in Amman, Jordan was collected by identifying the respondents from different departments and hospitals. The researcher collected the pilot data personally; the researcher followed the drop-off and pick right up until collecting the questionnaires from the nursing supervisors. The hospitals involved were, namely: Eye Specialty Hospital; Amman Hospital; AL Rashid Hospital; Istiklal Hospital; and finally, AL Hamaideh Hospital. A total of 40 questionnaires were distributed among nursing supervisors in five private hospitals in Amman, and 35 questionnaires were returned. Table 3.4 below shows the number of supervisors for each hospital. According to Hertzog (2008), 30 respondents are sufficient for a pilot study intended to measure instrument adequacy. In addition, most of the respondents were able to understand the questions.

The pilot study commenced on 18 May 2018 and finished on 27 May 2018, which the participating nursing supervisors did not consider in the final data collection phase. The collected data was then keyed into the SPSS software package. The internal consistency reliability was measured using Cronbach Alpha Coefficient (α), in which each construct must be 0.7 or above to achieve the reliability level of the questionnaire. This has been explained in detail in the next subsection.

Table 3.4 Name of hospitals and number of supervisors for a pilot study

No	Name of hospital	Nursing supervisors
1	Eye Specialty Hospital	10
2	Amman Hospital	6
3	AL Rashid Hospital	4
4	Istiklal Hospital	10
5	AL Hamaideh Hospital	5
	Total	35

3.12.1 Reliability

Creswell (2012) defines reliability as the means by which collected results are kept stable and constant when the researcher employed the research instrument multiple times. The internal consistency of the scale is one of the main issues in reliability test checking, in order to ensure that the items matched the scales (Pallant, 2016), and are proficient to measure similar variables (Sekaran et al., 2016). Correlating the respondent's answers to each item question or with other items in a questionnaire is considered as internal consistency. According to Creswell. (2012), Saunders et al. (2009) reliability analysis is very helpful to the researcher in determining how interested was the respondent while completing the questionnaire from the beginning until the end. According to Sekaran et al. (2016) Cronbach's alpha should be more than 0.7 for each factor. Table 3.5 shows the Cronbach's alpha coefficient of each variable's dimensions of the study.

Table 3.5 Result of pilot study

Variables	Number of items	Cronbach's alpha
Trust	4	.709
Reciprocity	3	.811
Reputation	4	.779
Ability to share	4	.722
Knowledge self-efficacy	5	.721
Knowledge sharing behaviour	5	.744

The results showed that all constructs are reliable in term of internal consistency reliability as its Cronbach's alpha values ranged between 0.709 - 0.811, which indicate a reliable measures that can further used in future data collection. Therefore, the study results demonstrated that items were reliable for all the constructs.

3.13 Data Collection

The source of the data could be either primary or secondary (Sekaran & Bougie, 2010). Examples of primary data include opinions of staff on a specific issue, which are gathered directly by researchers (Sekaran et al., 2010). In this study, the source of data is primarily data gathered through a questionnaire. The respondents of the study are nursing supervisors working in Jordanian private hospitals in Amman, with an estimated number of 510 nursing supervisors working in these hospitals. The obtained data was collected from nursing supervisors employed in private hospitals in Amman. The required ethical approvals were obtained from the selected hospitals which participated in the study. The questionnaire survey was conducted to investigate the relationship between the variables which involved fitting and evaluating the proposed model in this study.

The data colligation was obtained from each hospital by obtaining permission from the head of the human resources section (HR). An HR representative of each hospital was invited in this study for their cooperation in distributing the questionnaire to nursing supervisors in circumstances where it is difficult to meet all nursing supervisors. This was mostly due to difficulties with their schedules. The researcher gave the questionnaire to the HR representative for distribution to the nursing supervisors within two (2) weeks as a maximum period of time. The questionnaire was then retrieved from the HR representative for data entry into SPSS to prepare for data analysis.

3.14 Data Analysis

Data analysis is one of the most important steps in the research process; the researcher starts analysis after collecting the data using a research questionnaire. In quantitative research, researchers usually apply statistical methods for testing the hypothesis and to gain desired results (Michael et al., 2010). In this research, the collected data were processed

and examined by utilizing different statistical methods. The researcher used SPSS software to clean the data from any missing data, normality, and outlier issues before starting analysis of the data by Smart PLS. PLS-SEM method has been used to analyse the data and assist the researcher for the suggested model in order to evaluate the effect of the IVs variables on the DV Variable as well as measuring the effect of the moderator in the proposed model. This was done by using Smart-PLS Software. The PLS-SEM method was selected due to this method being highly recommended for non-parametric data (Hair Jr et al., 2016).

3.14.1 Descriptive Analysis

Descriptive analysis is a method which aims to describe the variables by statics like frequencies, graphs, mean, standard deviations, and level of scores (Pallant, 2016). According to Sekaran et al. (2016) descriptive statistics provide a better understanding of the situation by converting the data into a presentable information form that can describe the relationship of variables. It also helps the researcher to review the overall trend and transparency in the data, provide information about the diversity of scores in the data and identify the difference between one data from another data (Creswell, 2012). Therefore, in this study, the researcher utilizes specific statistical techniques to define the characteristics of the sample and the researched variables.

3.14.2 Structural Equation Modelling (SEM)

Structural equation modelling (SEM) refers to the collection of statistical techniques which facilitates bringing the data and underlying theory together (Tabachnik et al.,2006). SEM is also known as causal modelling, causal analysis, simultaneous equation modelling, analysis of covariance structure, path analysis, or confirmatory factor analysis respectively (Tabachnick et al., 2007, p. 676). The analysing techniques of SEM such as covariance-based modelling (i.e. LISREL, AMOS) and variance-based or component-based modelling (i.e. Partial Least Squares (PLS)) are referred to as second generation data analysing techniques (Bagozzi et al., 1982).

Statistical applications in the social sciences have recently utilized more sophisticated multivariate methods by which to analyse the relationship between multiple variables (Hair et al., 2014). Multivariate analysis can be divided into two generations of techniques. The first generation comprises statistical methods often used in social science such as regression and multiple regression respectively. The second generation consists of structural equation modelling (SEM) which has been increasingly used by researchers to overcome the weaknesses of first generation techniques (Hair et al., 2014). Thus, SEM has been recognized by researchers as a means of empirically testing conceptual models and theories (Hair et al., 2012). Additionally, it is becoming a popular and standard method for empirical research in management and marketing studies (Henseler, et al., 2012; Ringle, et al., 2009).

SEM is essentially utilized to identify the relationship between the observed valuables and unobserved or latent variables (Chin, 1998). Kline (2011) explained that the observed variable (manifest variable) represents the collected data and scores while latent variables are not directly observable; for example, intelligence is measured by different kinds of observed variables such as memory capacity. The interaction effects between these two variables can be measured and clarified using computer programs and tools purposely constructed for SEM. These tools can analyse all structural equation models, such as the identification and estimation of mean structures, the logic of mean structures, interaction effects in path models, and combined mediation and moderation (Kline, 2011).

SEM contains two interrelated models explicitly defined by the researcher, namely, measurement model and structural model (Gefen et al., 2000). The measurement model also known as confirmatory factor analysis (CFA) defines the constructs (latent variables) that the model uses, and allocates observed variables to each; while the structural model (also known as regression or path analysis) defines the hypothetical relationship among the latent variables (Hair et al., 2006; Gefen et al., 2000). It is important to clarify that latent variable is a representation of the theoretical construct which cannot be observed directly and can have an exogenous form (i.e. independent variable) or endogenous form (i.e. dependent variable) in a model (Hair et al., 2006).

3.14.3 Partial Least Squares (PLS-SEM)

Hair et al. (2016) proposed the partial least squares (PLS) method. PLS is currently used as an SEM technique and has a significant importance in many research disciplines of business management. The PLS-SEM method has two sets of linear equation models (inner and outer). The inner model alters the relationship between latent variables; while the outer model explains the relationship between a latent variable and its observed variables (Henseler et al., 2009). In this research, there are three variables: individual factors as independent; knowledge sharing behaviour as a dependent; and knowledge self-efficacy as a moderating variable. In PLS-SEM, these variables are measured as latent variables. The inner model explains the relationship between them; whereas the outer model alters the relationship between the three researched variables and observed indicators.

To analyse the data of this research, Smart PLS was used. Smart PLS was selected because of its ability to execute all the algorithms of PLS-SEM that are required to achieve the objectives of the research. Moreover, Smart PLS has a graphical user interface representation to calculate the PLS path modeling. For the estimated results, Smart PLS provides presentable written results such as: weight for the measured model; the path coefficients relationship for the structural model; and R^2 values for the dependent variable (Hair et al., 2016). The SEM algorithms also take care of missing data by mean replacement, or deletion on the bases of case or pair. Furthermore, Smart PLS offers many structural model weights such as path weighting, that provides the highest R2 value for the dependent variables (Hair et al., 2016).

3.14.4 Models Assessment Procedures

In this research, all the latent variables are reflective. Therefore, the reflective measurement model was used to measure the proposed model. Furthermore, the structural measurement model was applied to measure the research hypotheses and the relationship between the latent variables. In the following sections, the assessment measurement model and structural model were described.

3.14.5 Assessment of Measurement Model

The three core mechanisms used to assess the measurement model are convergence validity, discriminant validity and composite reliability (Henseler, 2017).

i. Internal Consistency/ Composite Reliability

According to researchers like Hair et al. (2016) and Hair et al. (2014), the internal consistency is evaluated by internal reliability as shown by Cronbach Alpha and Composite Reliability. Variables with high CA values demonstrate that the item within the construct has the same range and meaning (Cronbach, 1971). Utilizing CA presents an estimation regarding the reliability based on indicator inter-correlations although, by PLS, internal consistency is assessed employing composite reliability (CR) (Chin, 1998). Indeed, while CA or CR assess similar issues to internal consistency, CR is concentrated on indicators that have different loadings. CA shows a strict understanding of the internal consistency reliability as it does not consider equivalency among the measures and assumes that all indicators are equally weighted (Werts et al., 1974). Besides that, the value of CR should be 0.6 or greater to show the right internal consistency (Bagozzi et al., 1988; Hair et al., 2016).

ii. Convergent Validity

Chin (1998) describes convergent validity as redundancy analysis, and the extent to which different indicators correlate positively with each other for the same construct (Hair et al., 2016). The term convergent validity can also refer to the similarity in degree of variance among the specific construct indicators. Hair et al. (2014) identify that this validity can be accessed by the factor loading size and average variance extracted (AVE).

The term factor loading is also known as the weight and correlation between individual variables and factors. The relevance in defining the factors' dimensions is identified by the higher levels of loadings. On the other hand, low relevance is indicated by those values that

have negative loadings (Reyna, 2010). To show more relevance, the factor loading values should be 0.6 or higher (Hair et al., 2016). The AVE value that is acceptable, according to Chin (1998), should be 0.5 or higher. The AVE value is measured by dividing the sum square of standard factor loadings by the number of factor loadings (Hair et al., 2016).

iii. Discriminant Validity

The degree to which the variable is empirically different from other variables in the model path is called discriminant validity. No matter how much it is different, the indicators only represent a single variable; moreover, how much it correlates to other variables (Chin, 1998; Diamantopoulos et al., 2008; Hair et al., 2016; Sarstedt et al., 2014). Discriminant validity can also refer to the problem of how truly different a variable is from others (Henseler et al., 2009).

Researchers like Fornell & Larcker (1981) suggested the most conservative criteria to access discriminant validity. In this process, the researcher compares each variable's average variance extracted value to the square inter-contract correction of that construct with other variables in the model structure. In particular, this validity is evaluated by comparing the root square of the AVE for more than one variable and their correlation. However, it is endorsed that the constructs will not show shared variance with other variables where the AVE value is lower than the variable value.

The correlations between the factors and the variables should not increase more than 0.85 (Clark & Watson, 1995; Henseler et al., 2015; Kline, 2015). The cross loading of indicators is the second common method by which to evaluate validity. In the approach, it was suggested that the indicator variable might show a greater loading on its construct than other constructs involved in the structural model. Heterotrait - monotrait (HTMT) is an estimated ratio designed to measure the correlation between two constructs; it should measure not more than 0.85. (Hair et al., 2016).

3.14.6 Assessment of Structural Model

This section will explain the analysis for the first objective of the current study, which to identify the individual factors effecting knowledge sharing behaviour among nursing supervisors in online healthcare communities. Hair et al. (2016) discussed how the evaluation of structural model findings includes examining the relationship between the constructs and assessing the predictive capability of the model. This process involves many sequential steps.

Collinearity

First is the examination of the collinearity of individual sets of predictor constructs separately so as to determine which construct is considered as excluding variables.

Path coefficient

The second step involves obtaining the path coefficients used in this study to evaluate the relationship between the variables. Furthermore, the standardized value of coefficient path must be between +1 and -1, since results that are near to one indicate a good positive relationship to the path coefficient.

Coefficient R^2

The third step applies the determination of coefficient R^2 value so as to calculate the predictive accuracy of the model. This analysis method is used to measure the squared correlation between actual and predicted values of the endogenous variable. Concurrently, this coefficient can present the combination effect of independent constructs on dependent variables. The R^2 value should measure from 0 to 1, and the higher level of predictive accuracy ought to be indicated by the higher level of R^2 value (Hair et al., 2014). The recommended R^2 value must be higher than 0.3 to reflect the accuracy of the structural model (Ringle et al., 2010).

Bootstrapping

In this study, the researcher also used parameter estimations, which are essential to SEM analysis. The importance of these parameters lies in their use in generating the estimated population covariance matrix for the structural model (Tabachnick & Fidell, 2008). In this study, the researcher used the parameter estimates and coefficient value to examine the hypothesis through bootstrapping with thousands of replications. A large number of subsamples are used from the base studied sample with replacement in the bootstrapping process. In the replacement process, an observation was taken randomly from the based sample on each occasion (Hair et al., 2016). Bootstrapping must be used specifically to measure the importance of the coefficient path. In this study, the researcher considers a coefficient path with 5% probability of error as a significant. Also utilized were p value and t value which measured the influence of variables at 5% level rent (Hair et al., 2014; Kline, 2011).

3.15 Moderating Effect

This section will explain the analysis for the second objective of the study, which is to assess the moderating effect of knowledge self-efficacy on the relationship between individual factors and knowledge sharing behaviour among nursing supervisors in online healthcare communities. The moderation effect is accounted for if the relationship between the independent and dependent variables is strongly influenced and dependent on the third variable which the researcher called the "moderator variable" (Preacher et al., 2007). According to Hair et al. (2016), the moderator effect arises when an independent variable (moderator) affects the strength of the relationship between the other two variables (independent and dependent) in the research model. That variable can affect the direction of the relationship between the dependent and independent variables in the research.

In this study, knowledge self-efficacy acts as a moderator in the research model. The researcher measured the effect of the moderating variable on the relationship between the independent (individual factors) and the dependent variables (knowledge sharing behaviour). The research framework of this study explains the path model of three variables. Figure 3.3 below demonstrates the relationship between all the variables. The

representation of the independent variable in the figure below is (X); for the dependent variable it is (Y); and the third variable (which is a moderator) is represented by (M):

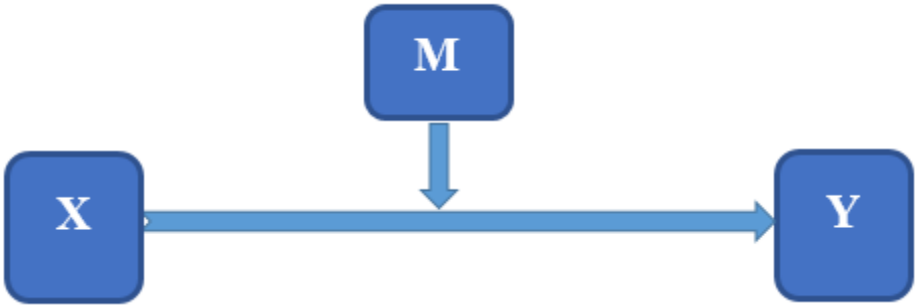


Figure 3.4 The moderating effect

To assess the effects of the moderators on the relationship between individual factors and knowledge sharing behaviour, the nature of this relationship should change as the values of knowledge self-efficacy change. In the current study, the assessment of moderating effects was achieved by including an interaction effect in the model and establishing whether such interaction was significant. In such an analysis, all predictors should be standardized to make interpretations easier and avoid the problem of multicollinearity (Aiken et al., 1991). This step was implemented by subtracting a measured variable from its respective mean. The results were then divided by the standard deviation of the measured variable.

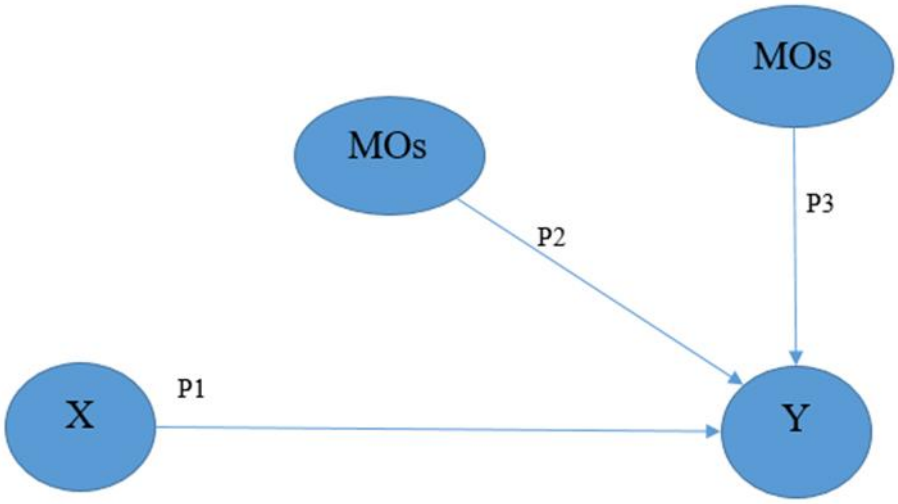


Figure 3.4 Interaction Terms Moderation

According to (Hair et al., 2014), the moderating effect can be formulated as follows:

$$Y = (P1.X + P2.\ M.\ + P3.\ (Y.M). \qquad \text{(Equation 3.1)}$$

The influence of X on Y depends on p1 and the product of p3 and M. Rewriting the equation as follows shows how the moderator variable can be integrated into the model:

$$y = p1.\ X + p2.\ M + p3.\ (Y\ .M). \qquad \text{(Equation 3.2)}$$

This equation illustrates that to include the effect of the moderator, the following are required: specification of the sample effect of the independent variable($p1x$X); the simple effect of the moderator ($p1x$M); and the product term (interaction term) $p3x$ $(X.\ M)$.

To determine whether knowledge self-efficacy has substantial effects, the effects of an interaction term on knowledge sharing behaviour should be significant. When a significant moderating effect is confirmed, plots can be generated for each interaction. Based on the suggestion of Aiken et al. (1991), Smart PLS four cell means were used to graphically illustrate the interaction between the studied variables. This involves both individual factors (low, moderate and high) as the independent variable and knowledge self-efficacy (low and high) as a moderating variable and then crossing these levels to obtain cell means. A low level is one standard deviation below the mean, while a high level is one standard deviation above the mean. These relationships are presented diagrammatically in Chapter Four.

Moderating effect was assessed using regression path coefficient for interaction term in the model based on standard error, t-value, and p-value to evaluate the strength of the moderating effect on the relationship between individual factors and knowledge sharing behaviour (Hair, et al., 2014; Kline, 2011).

3.16 Summary

In sum, this study employed an objectivist approach based on the philosophical research paradigm of positivism. It was therefore deductive in that the researcher developed research hypotheses from theories. Quantitative in nature, this study utilized a survey to gather the required data. The census sample was involved in this study to test the hypotheses effect and moderating role. A pilot study was first conducted by means of a self-administrated questionnaire completed by a targeted sample of respondents in certain private hospitals in Amman. Later, questionnaire was then distributed to 22 private hospitals. The descriptions of data analysis were provided including descriptive analysis, measurement and structural models of the assessment procedures; and an exploration of moderating effects.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This chapter presents descriptive statistics obtained from data analysis, hypothesis testing, results from inferential statistics, and a theoretical analysis. The collected data comprised analysis with the Statistical Package for Social Science (SPSS) version 23 and Partial Least squares (PLS) for Structural Equation Modeling. In the measurement model, discriminant validity and the convergent were tested. Structural models were used to test the hypothesized relationships in this research. Therefore, the purpose of this chapter is to deliver a full analysis of the data collected beginning with a description of the data collection procedures. It follows with a description of the data analysis methods as well as a measurement model and a structural model.

4.2 Response Rate

The response rate is defined as the percentage of questionnaires completed and returned by the respondents to the researcher. The rate of response is a key issue in a large cross-sectional survey (Beghin, 2012; Creswell, 2012). Typically, researchers aim for high response rates to ensure that the sample is representative. The response rate also could enable the researchers to generalize the results to the wider population (Saunders et al., 2009). Creswell (2012) recommended that the rate should be 50% or higher, while Saunders et al. (2009) recommended that the rate should be at least 60%.

For the current study, three hundred and thirty-seven (337) questionnaires were initially distributed among nursing supervisors in 22 hospitals in Amman, Jordan. Out of the distributed questionnaires, two hundred and ninety-five (295) were collected. The returned questionnaires were screened; unusable surveys consisted of those either blank or only partially completed with major portions and twelve (12) questionnaires excluded from the

analysis. With 283 returned and usable surveys out of (337), the response rate was 84% (283/337*100) as shown in Table (4.1).

Table 4.1 Summary of Response Rate

	Total	Percentage %
Total Number of distributed questionnaires	337	100
Total of Non-Responses	42	12.5
Unusable Responses	12	3.5
Outliers	0	0
Total of Usable Response	283	84

4.3 Preliminary Analysis

In the current study, in order to organize data prior to analysis, data were evaluated for, specifically: missing data; the normality of data distribution; outliers; multicollinearity; non-response bias; and common method bias which may influence use of the data analysis. Thus, the following sections will explain the preliminary analysis in detail.

4.4 Missing Value Analysis

Missing data is the common problem that faces the researchers during the data analysis process. This occurs during the data collection where responders may have missed answering all the questions. This problem can be handled in different methods by estimating the value to replace the missing value. It is important to screen the data for missing values and cases and variables with more than 20% missing data must be excluded from the analysis. However, the missing data can be measured based on three rules, namely: variables; cases; and values.

The researcher found that the 14 variables had at least one missing observation and from 283 cases, only 19 cases had missing observations. Based on the values, there were only 22 missing data points from 7,053 that needed to be handled prior to the model measurement. This represented 99.69 % of the total, which is insignificant. As the items of

the questionnaire were ordinal, variables of missing data were replaced, with the median of each variable calculated prior to analysis (Batista & Monard, 2003).

4.5 Normality Test

Distribution of data as a basic assumption in measuring the variation of constructs is stated as normality in statistics. Normality of data can be measured by statistical parameters such as the kurtosis and skewness test. As shown in Table 4.2, the distribution is normal, as all the constructs never exceed a critical value of ±1.96 for the kurtosis and skewness test (Hair et al., 2016). Therefore, the result demonstrated that there is no normality issue because the kurtosis and skewness values are between the critical values ranges. Hence, it can be determined that the data set of all the items was well-modeled by a normal distribution as shown in Table 4.2. Hence, it can be determined that the data set of all the items was well-modeled by a normal distribution.

Table 4.2 Normality test for research variables

Variable	Skewness		Kurtosis	
	Statistic	SE	Statistic	SE
TRUST	0.548	0.145	0.215	0.289
REC	1.117	0.145	1.012	0.289
REP	1.189	0.145	1.388	0.289
ABS	1.212	0.145	0.916	0.289
KSE	1.218	0.145	0.503	0.289
KSB	0.873	0.145	1.407	0.289

TRUST, REC: Reciprocity, REP: Reputation, ABS: Ability to share, KSE: Knowledge Self-Efficacy, KSB: Knowledge Sharing Behaviour.

4.6 Outliers

The presence of outliers indicates an observation that is considerably different from other observations due to its high or low scores (Hair et al., 2006). Therefore, scholars assert that outliers can have an impact on normality (Kline, 2015). Outliers take place when the standard score is greater than ±4 (Tabachnick & Fidell, 2001). Based on the outlier test carried out for this study for the first model, the range (Min-Max) of Z-score for all research

constructs were -2.369 to 3.969. Further, the result indicated that all Z-scores were in acceptable range. In this perspective Table 4.3 presents the outlier results of this study.

Table 4.3 Result of outlier test

Variable	Minimum	Maximum
Zscore (TRUST)	-2.369	3.261
Zscore (REC)	-1.949	3.177
Zscore (REP)	-1.913	3.328
Zscore (ABS)	-1.943	2.924
Zscore (KSE)	-1.527	2.387
Zscore (KSB)	-1.793	3.969

TRUST, REC: Reciprocity, REP: Reputation, ABS: Ability to share, KSE: Knowledge Self-Efficacy, KSB: Knowledge Sharing Behaviour.

4.7 Common Method Variance

Common method variance is a potential threat to internal validity, particularly when using surveys that collect responses in a single setting. First, the threat of common method bias is high if a single factor can account for the majority of covariance between the independent and dependent variables (Podsakoff et al., 2003). Table 4.4 presents the CMV result based on the study for the model. Based on the single-factor test, the first factor is accountable for only 41.098 of the overall variances, which means that the common method variance does not have any influence on the results.

Table 4.4 Common-method variance result (CMV)

	Component	Extraction Sums of Squared Loadings	
	Total Eigen value	% of Variance	Cumulative %
1	10.275	41.098	41.098

4.8 Multi - Collinearity Analysis

Multi-collinearity in sets of predictor constructs can be dealt with using SEM. Multi-collinearity happens when two or more constructs are not independent, which is a matter of degree and is identifiable. With the existence of multi collinearity, there will be issues in understanding the pure effect of each independent construct in explaining the variance in the dependent construct. As a rule, it is recommended that two constructs with a bivariate correlation in the middle 0.7s or higher must not be useful in the same analysis (Ferrari et al., 2006; Tabachnick & Fidell, 2007). Variance inflation factors (VIFs) are utilized to measure the influence of multicollinearity. While a VIF value of 10 is deliberated problematic by Myers, Allison suggested a VIF value of 2.50 as a more conservative cut-off. Two separate models (with and without moderating effect) were applied. As shown in Table 4.5, in the first model, the highest VIF was 2.489 and for the second model, the highest VIF was 3.970. These results were far below the cut-off of 10, and below the conservative cut-off of 2.5.

Table 4.5 Test of Multicollinearity based on VIF

Exogenous Construct	Model 1	Model 2
Trust	1.922	2.007
Reciprocity	2.489	2.546
Reputation	1.787	2.342
Ability to Share	2.33	2.395
Knowledge Self-efficacy	1.095	1.19
Trust * Knowledge Self-efficacy		3.970
Reciprocity * Knowledge Self-efficacy		3.437
Reputation * Knowledge Self-efficacy		3.174
Ability to Share * Knowledge Self-efficacy		3.124

A correlation coefficient of more than 0.85 between predictors represents high multicollinearity (Garson,2008). According to Table 4.6, which represents the multicollinearity test based on correlation coefficients among all variables, it was found that all coefficients measured less than 0.8. Therefore, that indicated there is no multicollinearity.

Table 4.6 Multi-Collinearity test based on correlation coefficients

	TRUST	REP	KSE	REC	ABS
TRUST	1				
REP	.568**	1			
KSE	.121*	.234**	1		
REC	.620**	.579**	.258**	1	
ABS	.601**	.570**	.182**	.716**	1

KSB: knowledge sharing behaviour, TRUST: Trust, REP: reputation, KSS: knowledge sharing self-efficacy, REC: Reciprocity, ABS: ability to share

4.9 Demographic Characteristics

Participant demographic data was collected to explore background factors. Demographic factors considered in this study are as follows: gender; age; educational level; internet usage; and experience in the health sector.

As illustrated in Table 4.7, the respondents were predominantly female. Females comprised 52.7% of the sample whereas only 47.3% of the respondents were male. As shown in Table 4.6, four categories of age range choices were presented to the respondents, specifically: 25 to 30 years; 31 to 35 years; 36 to 40 years; and 40 years and older. The majority of the respondents were between the ages of 25 to 30 years (30.4%), while the lowest frequency was observed in the age range of 36 to 40 years (20.5%). Regarding an educational level, most participants reported as being undergraduates with an educational level of 71.4%. In addition, 15.9% of participants reported a high diploma; with 11.7% of the participants holding a masters and only 1.1% holding a Ph.D. degree. Results for the levels of internet usage among participants were as follows: the majority of respondents used the internet 1 to 3 hours per day (52.7%); followed by 4 to 6 hours per day (23.3%); and the lowest frequency was observed for respondents who used the internet less than 1 hour per day (1.1%). The experience in the health sector of respondents who participated in the study was asked. The minimum experience of working in the health sector was less than 5 years (6%). The percentage of respondents who had been working between 5 - 10 years was 23% and the percentage of respondents who had been working for more than 10 years was 71%.

Table 4.7 Demographic characteristics

Variable	Level	Frequency	Percent
Gender	Male	134	47.3
	Female	149	52.7
Age	25-30 years	86	30.4
	31-35 years	73	25.8
	36-40 years	58	20.5
	> 40 years	66	23.3
Education	Bachelor	202	71.4
	High diploma	45	15.9
	Master	33	11.7
	PhD	3	1.1
Internet usage	< 1hour	27	9.5
	1 - 3hours	149	52.7
	4 - 6 hours	66	23.3
	>6 hours	41	14.5
Experience	<5	17	6
	5-10	65	23

4.10 Descriptive Statistics

This section presents the descriptive statistics of the constructs in the model evaluation. Descriptive statistics were employed in the initial stage of the data analysis process, i.e., by computing all of the constructs in the study, namely: trust reputation; knowledge self-efficacy; reciprocity; ability to share; and knowledge sharing behaviour.

4.10.1 Descriptive Result of Trust

Table 4.8 shows the descriptive result of four items related to trust. Each scale is based on a 5-point Likert scale. The mean value for the statement “Overall, the people in online health communities were trustworthy” has the highest value with (M = 3.73, S. D = 0.84); while the lowest mean value belongs to the statement “The people in online healthcare communities were friendly.” with (M = 2.63, S. D = 0.76). The overall mean for all the items was M = 2.68 of scale 3. This indicates that the level of trust was lower than the median of scale (3) which revealed a less than moderate level for this construct among the respondents.

Table 4.8 Descriptive statistics related to the respondent's trust

Item	M	SD
We were usually considerate of one another's feelings in online healthcare communities.	2.67	0.85
The people in online healthcare communities were friendly.	2.63	0.76
I could rely on those with whom I worked in online healthcare communities.	2.69	0.83
Overall, the people in online health communities were trustworthy.	2.73	0.84
Total	2.68	0.71

Note: M= mean, SD= standard deviation

4.10.2 Descriptive Result of Reciprocity

The respondents' comments were studied using three items based on the 5-point Likert scale ranging from "strongly disagree" to "strongly agree". As shown in Table 4.9 with regards to reciprocity, the statement "When I share my knowledge in online healthcare communities, I expect the other members to respond whenever I am in need." had the highest mean score with (M = 2.55, S.D = 0.85); whilst the statement "When I share knowledge in online healthcare communities, I believe that my questions will be answered in the future." had the lowest mean score with (M = 2.50, S.D =0.88). The overall mean for reciprocity was M = 2.52, which was lower than the median of scale (3) which revealed an almost low level for this construct.

Table 4.9 Descriptive statistics related to reciprocity

Item	M	SD
When I share knowledge in online healthcare communities, I believe that my questions will be answered in the future.	2.50	0.88
I believe that other members whom I interact with would help me whenever I am in need in online healthcare communities.	2.52	0.85
When I share my knowledge in online healthcare communities, I expect the other members to respond whenever I am in need.	2.55	0.85
Total	2.52	0.78

Note: M= mean, SD= standard deviation

4.10.3 Descriptive Result of Reputation

Table 4.10 provides the descriptive statistics on the ratings related to the reputation. As seen in Table 4.3 with regards to reputation, the statement "I can earn some feedback or rewards through participation that represents my reputation and status in the online healthcare communities" recorded the highest mean score with (M = 2.54, S.D = 0.86); while the lowest mean belongs to "I earn respect from others by participating in the online healthcare communities." with (M = 2.36, S.D = 0.90). The overall mean of skills was M=2.46 which was lower than the median of scale (3), which revealed an almost low level for this construct.

Table 4.10 Descriptive Statistics Related to Reputation

Item	M	SD
I earn respect from others by participating in online healthcare communities.	2.36	0.90
I feel that participation improves my status in online healthcare communities.	2.43	0.86
My participating in online healthcare communities can enhance my reputation in my professional field.	2.51	0.86
I can earn some feedback or rewards through participation that represent my reputation and status in the online healthcare communities.	2.54	0.86
Total	2.46	0.76

Note: M= mean, SD= standard deviation

4.10.4 Descriptive Result of Ability to Share

Table 4.11 provides the descriptive statistics on the ratings related to the ability to share. Each scale was based on a 5-point Likert scale. According to the descriptive statistics of related items to the ability to share (Table 4.10), the highest mean belongs to "I am fully capable of sharing my knowledge with others in online healthcare communities." with (M = 2.65, S.D = 0.93). The lowest mean belongs to "I believe I am fully capable of sharing my knowledge at any time in online healthcare communities." with (M = 2.56, S.D = 0.93). The overall mean for all the items showed that the level of ability to share was less than the median of scale (3), which revealed a less than moderate level for this construct among the respondents. The overall mean for all the items indicated that the level of capability to

share was less than the median of scale (3), which exposed a less than moderate level for this construct among the respondents.

Table 4.11 Descriptive Statistics Related to Ability to Share

Item	M	SD
I am fully capable of sharing my knowledge with others in online healthcare communities.	2.65	0.93
If it depended only on me, I would exhaustively share my knowledge in online healthcare communities.	2.57	0.90
I am fully capable of articulating my knowledge in written or spoken form in online healthcare communities.	2.61	0.90
I believe I am fully capable of sharing my knowledge at any time in online healthcare communities.	2.56	0.93
Total	2.60	0.82

Note: M= mean, SD= standard deviation

4.10.5 Descriptive Result of knowledge Self-Efficacy

To address the measurement of knowledge self-efficacy (which includes six items), the 5-point scale ranging from strongly disagree to strongly agree was employed. Table 4.12 shows that the overall mean for all the items is M = 2.56, which indicates that the level of knowledge self-efficacy is lower than the median of scale (3). According to the descriptive statistic of items related to knowledge self-efficacy, the highest mean belongs to "My limited knowledge, even if shared, will generate little effect within the online healthcare communities" with (M = 3.32, S.D =1.15). This was followed by "I am confident that my knowledge sharing would increase the productivity in the online healthcare communities." with (M = 2.63, S.D =1.13). The lowest mean belongs to "The knowledge I share with my colleagues would be very useful to them in online healthcare communities. "with (M = 2.46, S.D = 1.15).

Table 4.12 Descriptive Statistics Related to Knowledge Self-Efficacy

Item	M	SD
The knowledge I share with my colleagues would be very useful to them in online healthcare communities.	2.46	1.15
My personal expertise will display its value if shared within the online healthcare communities.	2.59	1.14
My limited knowledge, even if shared, will generate little effect within the online healthcare communities. (R)	3.32	1.15
I am confident that my knowledge sharing would improve work processes in the online healthcare communities.	2.56	1.10
I am confident that my knowledge sharing would increase the productivity in the online healthcare communities.	2.63	1.13
Total	2.56	1.02

Note: M= mean, SD= standard deviation

4.10.6 Descriptive Result of Knowledge Sharing Behaviour

To address the measurement of knowledge sharing behaviour, five items were designed utilizing the 5-point scale indicators ranging from strongly disagree to strongly agree. Based on Table 4.13, the overall mean of all the items is M = 2.17 which shows that the level of knowledge sharing behaviour is lower than the median of scale (3). As shown in Table 4.12, the highest mean belongs to "I keep my work experience and never share it out with others easily in online healthcare communities." with (M = 3.58, S.D =1.20). This was followed by "I actively use online healthcare community's sources available to share my knowledge." with (M = 2.324, S.D = 0.81). The statement " So long as the other colleagues need it, I always tell whatever I know without any hoarding in online healthcare communities" with (M = 2.00, S.D = 0.80) had the lowest mean score.

Table 4.13 Descriptive Statistics Related to Knowledge Sharing Behaviour

Item	M	SD
In daily work, I take the initiative to share my work-related knowledge to my colleagues in online healthcare communities.	2.23	0.85
I keep my work experience and never share it out with others easily in online healthcare communities. (R)	3.58	1.20
After learning new knowledge useful to work, I promote it to let more people learn it in online healthcare communities	2.12	0.81
I actively use online healthcare community's sources available to share my knowledge.	2.32	0.81
So long as the other colleagues need it, I always tell whatever I know without any hoarding in online healthcare communities	2.00	0.88
Total	2.17	0.65

Note: M= mean, SD= standard deviation

4.11 Structural Equation Modelling (SEM)

SEM involves both a measurement model and a structural model by comprising factor analysis and multiple regression that are able to assess the complex relationship between one or more exogenous variables and one or more endogenous variables. SEM is generally used in social science as it is able to assign a relationship between latent variables from observing variables. SEM is performed in two steps: measurement model and structural model. This means that initially it processes with validating the measurement model through confirmatory factor analysis and enters to the second step by fitting the structural model through path analysis with latent variables.

4.11.1 Measurement Model

The measurement model shows how a latent variable is measured in terms of the observed variable. It is concerned with the relationship between observed variables and a latent variable. Such a model can evaluate the hypothesis on the relationship between an observed variable and the construct that it is designed to measure. The measurement model is important because it can afford a test for the reliability of observed variables when applying to measure the latent variables. Assessing the measurement model, this study evaluated Cronbach's alpha and composite reliability (CR) to investigate internal consistency and average variance extracted (AVE) to examine convergent validity. In addition, Fornell-

Larcker criterion, HTMT method, and cross-loadings were used to investigate discriminant validity.

i) Internal Consistency

This type of reliability takes into account the different outer loadings of the indicator variables and is calculated using the following formula:

The calculation of internal consistency for an item is carried out using Cronbach's alpha (CA). Internal consistency reliability is described as being satisfactory once the value is at least 0.7 in the first stage and rates above 0.8 or 0.9 in more advanced stages of research; whereas a value below 0.6 indicates a lack of reliability (Nunnally & Bernstein, 1994). The internal consistency for an item is performed using Cronbach's alpha (CA).

Composite Reliability (CR) larger than 0.7 is acceptable (Hair et al., 2011). Then, the CR following the improvement of the reliability of the questionnaire is possible via removing the increasing error of the statements. Table 4.14 indicates that the CR of each construct for this study ranges from 0.784 to 0.925, which is above the suggested threshold value of 0.7. Thus, the results indicate that the items used to represent the constructs have acceptable internal consistency reliability.

Table 4.14 The result of consistency reliability

Construct	Cronbach's Alpha	CR
Trust	0.889	0.923
Reciprocity	0.893	0.933
Reputation	0.901	0.931
Ability to Share	0.919	0.943
Knowledge Self-efficacy	0.925	0.947
Knowledge sharing behaviour	0.784	0.861

ii) Convergent Validity

In this study, the measurement model's convergent validity is assessed by examining its average variance extracted (AVE) value. Convergent validity is adequate when constructs have an average variance extracted (AVE) value of at least 0.5 or more. Table 4.14 shows that all constructs have AVE ranging from 0.610 to 0.824, which exceeded the recommended threshold value of 0.5. This result shows that the study's measurement model has demonstrated an adequate convergent validity.

Table 4.15 The result of Convergent Validity

Construct	Item	initial model	Modified model	AVE
Trust	Trust1	0.850	0.850	0.751
	Trust2	0.868	0.868	
	Trust3	0.883	0.883	
	Trust4	0.865	0.865	
Reciprocity	REC1	0.907	0.906	0.824
	REC2	0.908	0.908	
	REC3	0.909	0.909	
Reputation	REP1	0.842	0.842	0.770
	REP2	0.908	0.908	
	REP3	0.887	0.887	
	REP4	0.873	0.873	
Ability to Share	ABS1	0.910	0.910	0.806
	ABS2	0.911	0.911	
	ABS3	0.915	0.915	
	ABS4	0.854	0.854	
Knowledge Self-Efficacy	KSE1	0.869	0.882	0.816
	KSE2	0.879	0.897	
	KSE3	0.432	Deleted	
	KSE4	0.900	0.906	
	KSE5	0.925	0.929	
Knowledge sharing behaviour	KSB1	0.684	0.688	0.610
	KSB2	-0.163	Deleted	
	KSB3	0.785	0.785	
	KSB4	0.803	0.806	
	KSB5	0.839	0.836	

iii) Discriminant Validity

Discriminant validity is defined when a construct is acceptably different from other constructs by empirical standards. In this study, the discriminant validity was measured through three different methods as suggested by Hair et al. (2016) as follows:

a) Fornell – Larcker

To establish discriminant validity, the square root of the AVE of each construct can be compared with the correlations of this construct to all other constructs. Fornell & Larcker (1981) declared that the square root of AVE should be greater than the corresponding correlations among the latent constructs. The AVE for all variables exceeded the suggested value of 0.50 implying that the variance captured by the construct was significantly greater than that attributable to error. As shown in Table 4.15, the result demonstrates that the constructs were more strongly related to their respective indicators than to the other constructs in the model where each construct achieved a higher value with the same construct such as the manner in which ABS achieved 0.898, KSE 0.904, KSB 0.781, REC 0908, REP 0.878 and Trust 0.867. The result indicating the measure has adequate discriminant validity. This result confirms that the measurement model has discriminant validity.

Table 4.16 Correlation of latent variables and discriminant validity (Fornell-Larcker)

Construct	ABS	KSE	KSB	REC	REP	Trust
ABS	0.898					
KSE	0.185	0.904				
KSB	0.717	0.18	0.781			
REC	0.716	0.26	0.69	0.908		
REP	0.572	0.237	0.61	0.581	0.878	
Trust	0.602	0.124	0.645	0.621	0.567	0.867

Bold Number is the Square root of AVE.KSB: knowledge sharing behaviour, TRUST: Trust, REP: reputation, KSE: knowledge self-efficacy, REC: Reciprocity, ABS: ability to share

b) HTMT

The heterotrait-monotrait ratio of criterion (HTMT) is a new approach designed to assess discriminant validity in variance-based SEM. HTMT was also performed for the model in order to assess discriminant validity. The HTMT approach is an estimate of the correlation between the constructs. Hair et al. (2014) suggested that the HTMT value has to be in the range of 0.85 to 0.90, meaning that the two constructs were distinct. Table 4.16 reveals the HTMT values for all of the constructs in this research. Thus, the constructs displayed sufficient discriminant validity.

Table 4.17 Correlation of latent constructs and discriminant validity (HTMT method)

	ABS	KSB	REC	REB	Trust
ABS					
KSB	0.844				
REC	0.789	0.823			
REB	0.626	0.722	0.646		
Trust	0.664	0.772	0.696	0.634	

KSB: knowledge sharing behaviour, TRUST: Trust, REP: reputation, KSE: knowledge self-efficacy, REC: Reciprocity, ABS: ability to share.

c) Cross loading

According to Hair et al. (2016), the last part of the evaluation of discriminant validity at item level is performed by assessing the cross loading of items. This is to determine that the loading of indicators on the apportioned latent construct should be higher than the loading on all other constructs by row and by column. In other words, the indicators' (items) loading of their own construct should be higher than the loading on another construct. The findings in Table 4.17 confirmed that all the indicators' loadings of the assigned latent construct are higher than the cross loading on other constructs (by row and by column). The result indicated a good degree of uni-dimensionality for each construct.

Table 4.18 Loading and cross loading of constructs for discriminant validity assessment

	ABS	KSB	KSE	REC	REP	Trust
ABS1	0.910	0.655	0.149	0.630	0.565	0.551
ABS2	0.911	0.643	0.129	0.590	0.488	0.543
ABS3	0.915	0.619	0.191	0.590	0.479	0.493
ABS4	0.854	0.654	0.195	0.754	0.519	0.571
KSB1	0.531	0.688	0.136	0.466	0.401	0.453
KSB3	0.575	0.785	0.161	0.585	0.504	0.508
KSB4	0.547	0.806	0.083	0.514	0.48	0.532
KSB5	0.584	0.836	0.18	0.583	0.513	0.518
KSE1	0.155	0.131	0.882	0.237	0.218	0.109
KSE2	0.202	0.184	0.897	0.258	0.238	0.149
KSE4	0.120	0.146	0.906	0.179	0.186	0.058
KSE5	0.180	0.179	0.929	0.257	0.210	0.122
REC1	0.673	0.623	0.256	0.906	0.560	0.57
REC2	0.627	0.640	0.240	0.908	0.513	0.567
REC3	0.649	0.617	0.213	0.909	0.509	0.554
REP1	0.453	0.468	0.179	0.46	0.842	0.471
REP2	0.559	0.575	0.245	0.536	0.908	0.52
REP3	0.508	0.539	0.185	0.537	0.887	0.518
REP4	0.483	0.553	0.216	0.500	0.873	0.48
Trust1	0.552	0.553	0.123	0.496	0.498	0.850
Trust2	0.537	0.584	0.13	0.554	0.462	0.868
Trust3	0.487	0.549	0.075	0.572	0.505	0.883
Trust4	0.509	0.547	0.101	0.528	0.502	0.865

KSB: knowledge sharing behaviour, TRUST: Trust, REP: reputation, KSE: knowledge self-efficacy, REC: Reciprocity, ABS: ability to share

4.11.2 Structural Model

Path analysis is a statistical method based on linear regression and is the preferred analytical approach in social science. In addition, path analysis is a powerful way to examine all of the complex relationships simultaneously (Tabachnick et al., 2008). The main phase in SEM analysis comprises the use of the structural equation model which can be used by evaluating the relationships among the research constructs. The structural equation model is the second main step of SEM analysis after fitting the measurement model. The structural model can be applied by identifying the relationships among the variables. The structural model provides details on the relations between the variables. It illustrates the specific information about the relationship between the independent or exogenous variables and dependent or endogenous variables (Hair et al., 2006).

Evaluation of the structural model focuses firstly on the overall model fit, followed by the size, direction, and significance of the hypothesized parameter estimates (Hair et al., 2006).

Structural models could be implemented by establishing the relationships among variables. It provides more information as to the inter-connections among these variables. It also details key information regarding independent or exogenous variables as well as dependent or endogenous variables (Hair et al., 2006). Evaluation of structural model mainly looks into the size of effect, direction, and implication of the hypothesized parameter approximations are established (Hair et al., 2006). The present study's model involves the moderator, and thus it is feasible to study the moderating outcome as an interaction term among independent variables and dependent variable. The final part involves validation of anticipated correlation for the research established as hypotheses illustrated in Table 4.19.

Table 4.19 List of hypotheses and relative paths

Hypothesis	Path
H1: Trust will have a positive significant effect on knowledge sharing behaviour in online health communities.	TRUST → KSB
H2: Reciprocity will have a positive significant effect on knowledge sharing behaviour in online health communities.	REC → KSB
H3: Reputation will have a positive significant effect on knowledge sharing behaviour in online health communities.	REP → KSB
H4: Ability will have a positive significant effect on knowledge sharing behaviour in online health communities.	ABS → KSB
H5: Knowledge Self-efficacy moderates the relationship between trust and knowledge sharing behaviour.	KSE TRUST → KSB
H6: Knowledge Self-efficacy moderates the relationship between reciprocity and knowledge sharing behaviour.	KSE REC → KSB
H7: Knowledge Self-efficacy moderates the relationship between reputation and knowledge sharing behaviour.	KSE REP → KSB
H8: Knowledge Self-efficacy moderates the relationship between ability to share and knowledge sharing behaviour.	KSE ABS → KSB

KSB: knowledge sharing behaviour, TRUST: Trust, REP: reputation, KSE: knowledge self-efficacy, REC: Reciprocity, ABS: ability to share

PLS-Structural equation modeling was used to evaluate the research hypotheses. According to the research framework, Figure 4.1 in the first model evaluates the effects of four independent variables including trust, reputation, reciprocity, and ability to share on knowledge sharing behaviour. In the second model, the moderating effect of knowledge self-efficacy on the relationship between independent variables and knowledge sharing behaviour was evaluated.

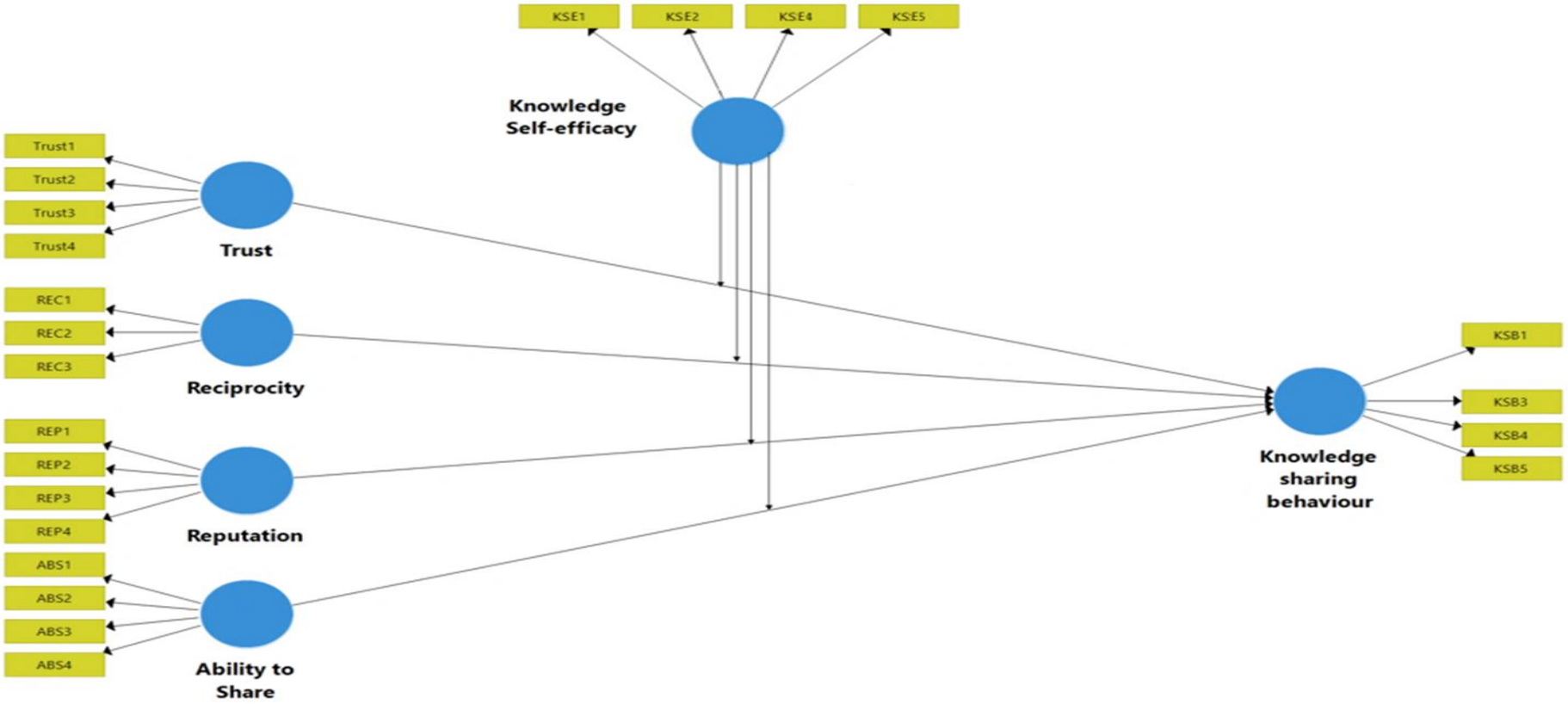
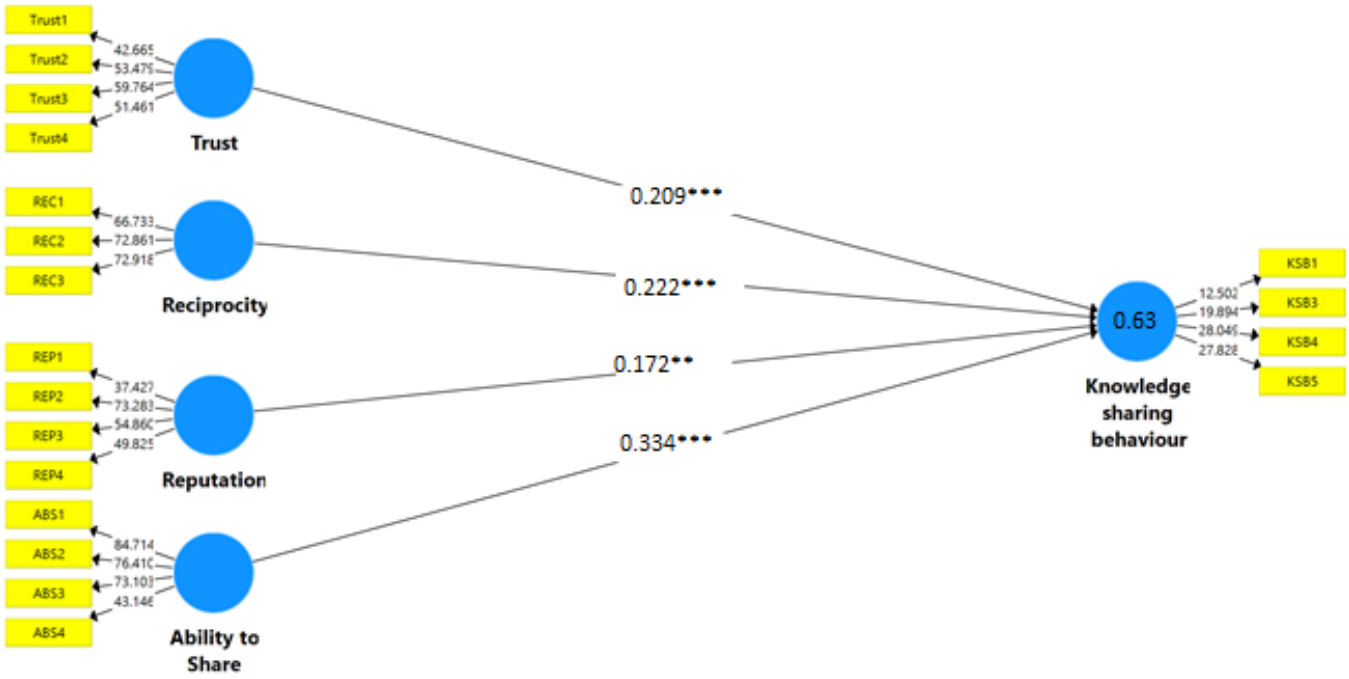


Figure 4.1 The research model

i) Model 1: Direct Effect of IVs on DV

The bootstrapping approach was used to evaluate the significance of the proposed research hypotheses for the first model. Bootstrapping includes the random re-sampling of the original dataset to generate new samples of the same size as the original dataset. This technique tests not only the reliability of the dataset but also assesses the statistical significance of these coefficients and subsequently the error of the estimated path coefficients (Chin, 1998). As shown in Figure 4.2, the standardized path coefficients (β) and p-values, the significance of the paths and the R^2 for each endogenous construct were tested.

This section discusses the first objective which involve H1, H2, H3 and H4. The result of the bootstrapping method has been shown in Table 4.20, where it demonstrates p-values for each path. According to the results, the effect of all independent variables on knowledge sharing behaviour was statistically significant. According to these results, the ability to share knowledge is the most important antecedent for knowledge sharing behaviour among nursing supervisors. Knowledge-sharing behaviour can be improved and enhanced when nursing supervisors are able to share knowledge via online healthcare communities; the effect of the ability to share on knowledge sharing behaviour was positive and significant (β =0.334, p=0.001). Similarly, reciprocity had a positive and significant effect (β=0.222, p=0.002) on knowledge sharing behaviour. The results also showed that both reputation (β =0.172, p=0.02) and trust (β =0.209, p=0.001) had a positive and significant effect on knowledge sharing behaviour. Finally, these bootstrapping results showed that the direct effect of all the independent variables on knowledge sharing behaviour is statistically significant which means a higher level of these factors would improve the level of knowledge sharing behaviour among respondents.



Note: ***: p<0.01; **: p<0.05;

Figure 4.2 Path Model of knowledge sharing behaviour without Moderating effect.

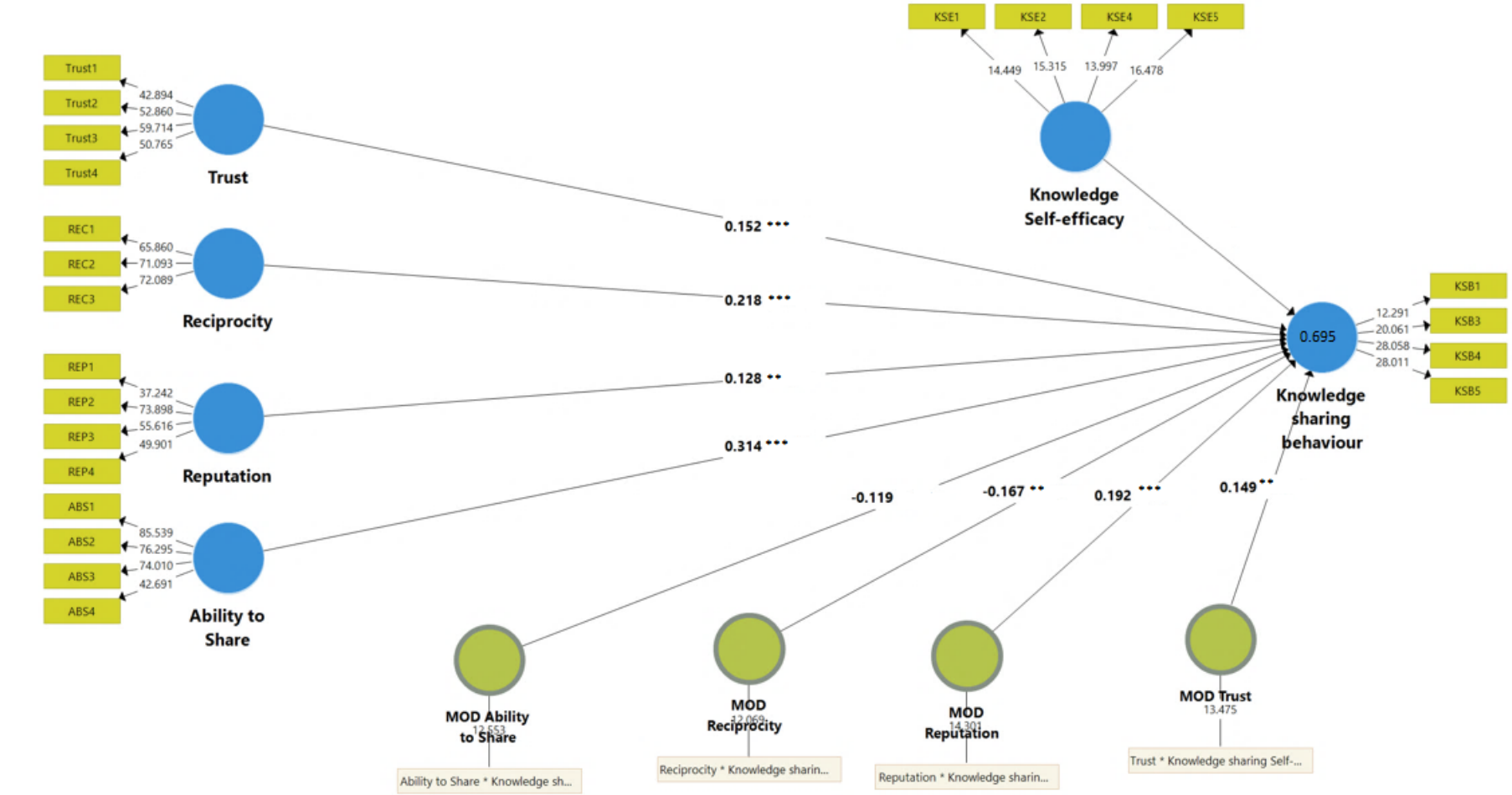
Table 4.20 List of hypotheses and relative paths for the first model

Path	β	SE	T Values	P Values
H1 Trust -> KSB	0.209	0.049	4.217	0.000 ***
H2 Reciprocity -> KSB	0.222	0.072	3.067	0.002 ***
H3 Reputation -> KSB	0.172	0.074	2.333	0.020 **
H4 Ability to Share -> KSB	0.334	0.049	6.839	0.000 ***

Note: ***: p<0.01; **: p<0.05;

ii) Model 2: Moderating Effect of Knowledge Self-Efficacy

This section discusses the second objective which involve H5, H6, H7 and H8. To explore whether knowledge self-efficacy significantly moderates the relationship between trust, reputation, reciprocity, and ability to share on knowledge sharing behaviour, knowledge self-efficacy was added to the model as a moderator. In addition, all interaction effects were added into the model using this function in Smart-PLS based on the two-stage approach. This approach uses the latent variable scores of the latent predictor and latent moderator variable from the main effects model (without the interaction term). These latent variable scores are saved and used to estimate the product indicator for the second stage analysis that involves the interaction term in addition to the predictor and moderator variable (Figure 4.3).



Note: ***: p<0.01; **: p<0.05

Figure 4.3 Path Model of knowledge sharing behaviour with Moderating effect

The result of the bootstrapping method (Table 4.20) for moderator variables in the model showed that knowledge self-efficacy had a significant moderating effect on the relationship between reciprocity, reputation, and trust with knowledge sharing behaviour.

According to the results, it was found that the moderating effect of knowledge self-efficacy (interaction between knowledge self-efficacy and trust, TRUST*KSE) exists in the relationship between reputation and knowledge sharing behaviour. The results were also statistically significant (β =0.142, p=0.03) and positive which revealed the fact that knowledge self-efficacy was able to moderate positively the relationship between trust and knowledge sharing behaviour. Based on these findings, it can be found that trust is more positively effective on knowledge sharing behaviour when the knowledge self-efficacy is at a higher level; when the level of knowledge self-efficacy increases then this factor will increase accordingly. Trust will increase the level of knowledge sharing behaviour among respondents that can be seen in slope analysis (Figure 4.7).

When using Smart PLS 3, the software executes many types of moderation, standardizes when necessary, and produces a simple slope analysis for interpreting moderation results. To assist interpretation of the interaction, Smart PLS 3 computes and the output displays a simple slope plot. Slope plots are typically used as a visual illustration to gain a better understanding of the moderation effect. A slope plot displays a two-way interaction of the relationship between independent variable and dependent variable respectively. The horizontal x-axis represents the exogenous construct (independent variable) and the vertical y-axis represents the endogenous construct (dependent variable). The three lines illustrate the relationship between independent variable and dependent variable at three levels (low, moderate and high of the moderator construct (M). The low level of M is one standard deviation unit below the average, the second level is the average of moderator and the high level of M is one standard deviation unit above the average. Differences among the slope of these three lines indicate the existing of moderation (Sarstedt, 2010).

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The moderating effect of knowledge self-efficacy (interaction between knowledge self-efficacy and reciprocity, REC*KSE) on the relationship between reciprocity and knowledge sharing behaviour was statistically significant (β =-0.167, p=0.018). It was also negative which means the knowledge self-efficacy was able to moderate negatively the relationship between reciprocity and knowledge sharing behaviour. This finding indicated that, at a high level of knowledge self-efficacy, reciprocity had a lower effect on knowledge sharing behaviour and when the level of knowledge self-efficacy reduces then reciprocity would be more effective on knowledge sharing behaviour. The results of slope analysis (Figure 4.5) also support this finding.

The moderating effect of knowledge self-efficacy (interaction between knowledge self-efficacy and reputation, REP*KSE) on the relationship between reputation and knowledge sharing behaviour also was statistically significant (β =0.192, p<0.001) and positive. This revealed that knowledge self-efficacy was able to moderate positively the relationship between reputation and knowledge sharing behaviour. According to these results, it can be concluded that at a high level of knowledge self-efficacy, reputation is more positively effective on knowledge sharing behaviour. Similarly, when the level of knowledge self-efficacy increases, then the reputation factor will affect the level of knowledge sharing behaviour among respondents. Slope analysis (Figure 4.6) also showed the same pattern.

The moderating effect of knowledge self-efficacy (interaction between knowledge self-efficacy and ability to share, ABS*KSE) on the relationship between the ability to share and knowledge sharing behaviour was negative but not statistically significant (β =-0.119, p=0.073). This means that knowledge self-efficacy was not able to moderate the relationship between the ability to share and knowledge sharing behaviour as shown in (Table 4.21).

Table 4.21 Test of the Moderating Effect of knowledge self-efficacy

Path	β	SE	T Values	P Values
H5 Trust*KSE -> KSB	0.149	0.069	2.166	0.03 **
H6 REC*KSE -> KSB	-0.167	0.071	2.358	0.018 **
H7 REP*KSE -> KSB	0.192	0.053	3.640	0.001 ***
H8 ABS*KSE -> KSB	-0.119	0.066	1.794	0.073

Note: ***: $p<0.01$; **: $p<0.05$

The results of moderating effect shows that knowledge self-efficacy positively moderated the relationship between reputation and trust with knowledge sharing which indicated when the level of knowledge sharing increase then both reputation and trust are more effective on improving the level of knowledge sharing while self-efficacy negatively moderated the relationship between reciprocity and ability to share with the knowledge sharing means when the level of self-efficacy increase the impact of these two factors on knowledge sharing will be less compare to situation that self-efficacy is low among health care providers.

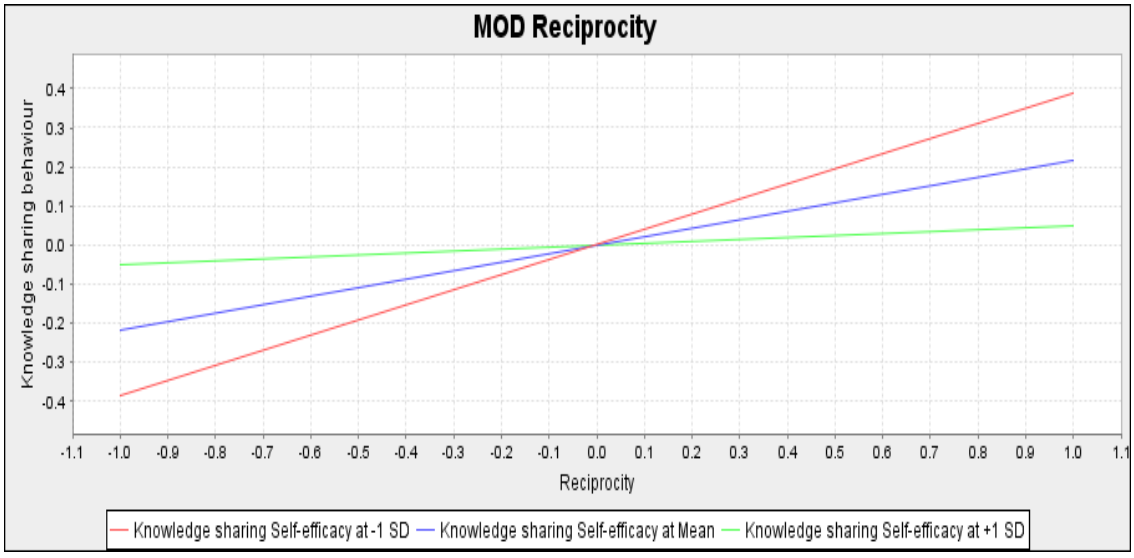

Figure 4.5 Slope analysis for moderation effect of KSE on the relationship between REC and KSB.

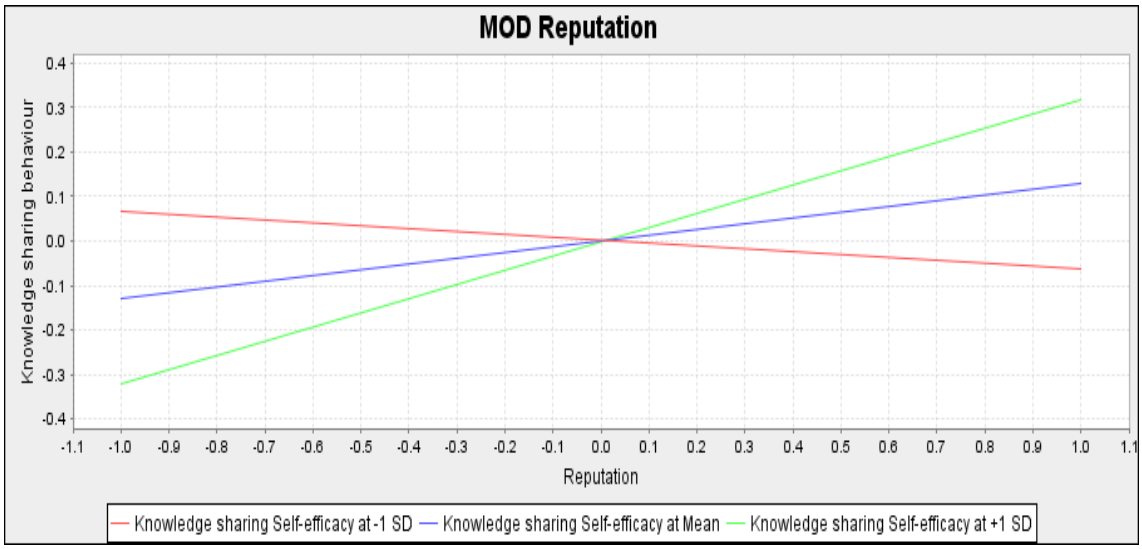

Figure 4.6 Slope analysis for moderation effect of KSE on the relationship between REP and KSB.

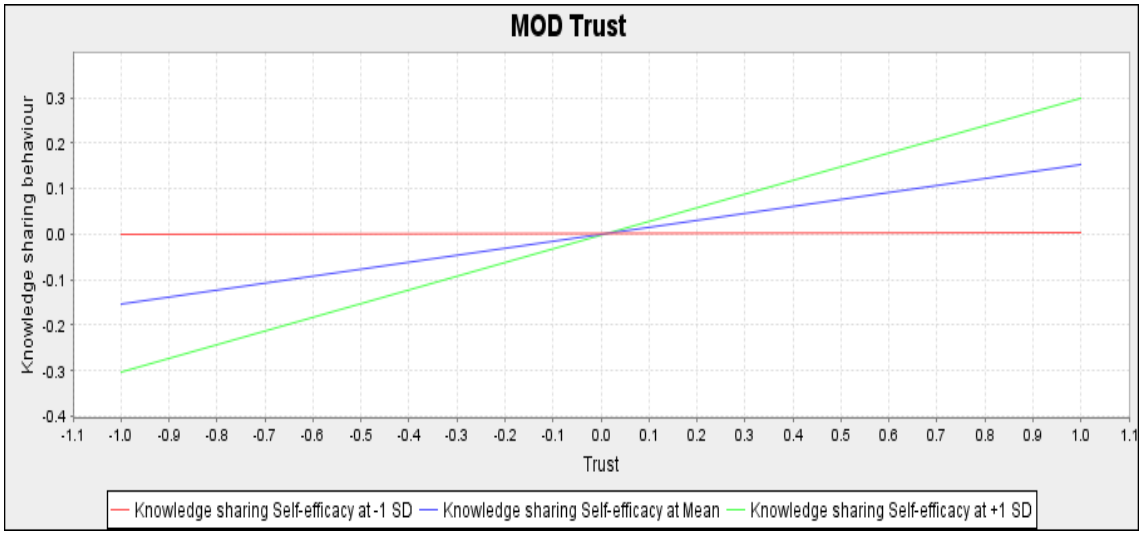

Figure 4.7 Slope analysis for moderation effect of KSE on the relationship between trust and KSB.

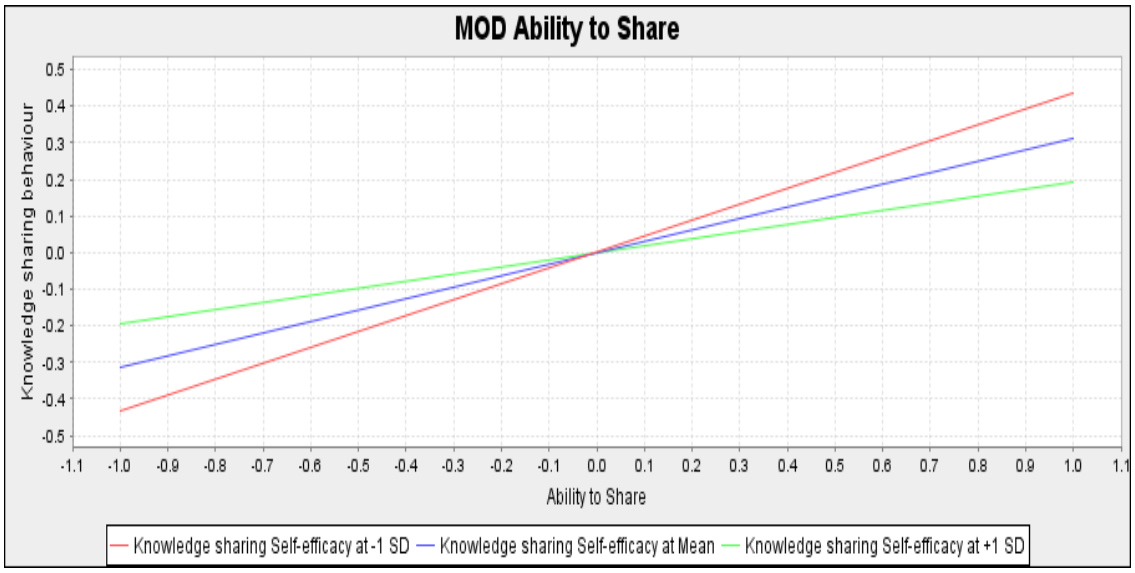

Figure 4.8 Slope analysis for moderation effect of KSE on the relationship between ABS and KSB.

iii) Coefficient of Determination (R^2)

The R^2 value shows the amount of variance independent variables that can be explained by the independent variables. Thus, a larger R^2 value increases the predictive ability of

the structural model. In this study, Smart-PLS algorithm function is used to obtain the R^2 values. The adjusted R^2 for knowledge sharing behaviour in two models were 0.627 and 0.685 respectively. This indicated that 62.7% of knowledge sharing behaviour could be explained by the four predictors including trust, reputation, reciprocity, and ability. The adjusted R^2 for the second model after adding the moderator indicated that 68.5% of changes in the knowledge sharing behaviour among respondents can be explained by four predictors and knowledge self-efficacy as a moderator. Table 4.22 shows the result of the R square of models 1 and 2.

Table 4.22 Results of the coefficient of determination (R^2) on KSB

Model	R^2	Adj R^2
Model 1	0.632	0.627
Model 2	0.695	0.685

iv) Effect Size f^2

The change in the R^2 value while a particular independent construct is eliminated from the model can be used to evaluate whether the omitted construct has a basic influence on the dependent constructs. This measure indicates the f^2 or effect size. The calculation of the effect size is as shown below:

$$f^2 = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}$$

Recommended guidelines for assessing effect size are $f2 \geq 0.02$, $f^2 \geq 0.15$ and $f^2 \geq 0.35$, respectively representing small, medium and large effect size of the exogenous construct in Table 4.23, the result of f^2 indicated that effect size of all exogenous constructs for knowledge sharing behaviour in the first model was between small effect size and moderate while the highest effect size belonged to the ability to share with f^2=0.130, which is close to medium effect size. For the second model also the highest effect size belonged to the ability to share with (f^2=0.135) followed by Reputation *KSE (f^2=0.78) which ranges between small and medium effect size.

Table 4.23 Results of effect size f^2 for knowledge sharing behaviour

Exogenous constructs	Model 1	Model 2
Trust	0.062	0.038
Reciprocity	0.055	0.061
Reputation	0.046	0.023
Ability to Share	0.13	0.135
Knowledge Self-Efficacy		<0.001
Trust *KSE		0.026
Reciprocity *KSE		0.032
Reputation *KSE		0.078
Ability to Share*KSE		0.015

v) Predictive Relevance Q^2 of Structural Model

An important aspect of a structural model is its capability to determine the predictive relevance of the model. The blindfolding procedure was employed to establish cross-validated redundancy measures for each construct. The results revealed that the Q^2 values of knowledge sharing behaviour in the model; one with value (0.350) and Q^2 values of knowledge sharing behaviour with value (0.392). In the model, two are larger than zero as shown in Table 4.24, recommending that the independent constructs have predictive relevance for the dependent constructs under consideration in this study (Hair et al., 2011).

Table 4.24 Results of predictive relevance (Q^2)

Model	Q^2
Model 1	0.360
Model 2	0.392

4.12 Summary

This chapter describes the assessment of measurement and structural models which include coefficient of determination of R square and predictive relevant Q^2. The first model measured using the direct effect of the exogenous variables on the endogenous variable which all the hypotheses were supported. Further, the second model that includes the moderator effect shows that all hypotheses were supported with the exception of one hypothesis which found that the ability to share was not affected by knowledge sharing

behaviour through the moderating effect of knowledge self-efficacy. The discussion, implication of findings, limitation of study and future research are presented in the next following chapter.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This final chapter aims to recapitulate the whole study, discuss the results and present the contributions of the study This chapter is divided into several parts. First, the recapitulation of the study's findings is presented. The next section explains how the contributions of the study are elaborated in two directions in terms of theoretical and practical contributions. Additionally, the limitations of the study are presented together with recommendations for future research, based on the study's results.

5.2 Discussion

This section presents discussion of the findings and comparisons with previous studies. The main objective for the current research is to identify the individual factors affecting knowledge sharing behaviour among nursing supervisors in online healthcare communities in Jordan.

Firstly, the findings showed that trust is an antecedent of knowledge sharing behaviour among nursing supervisors in online healthcare communities in private hospitals in Jordan. This result implies that the nursing supervisors' knowledge sharing behaviour can be improved and enhanced via their trust in the online healthcare communities. This finding is consistent that trust is a significant predictor of knowledge sharing behaviour with the assertion of (Hu et al 2012, Chowdhury, 2005, Jain et al., 2015) .In addition, this result is in line with the findings of Hu et al (2012) that trust and knowledge sharing have a positive relationship. The present study in the context of Jordan confirms that trust is an important antecedent of knowledge sharing behaviour. Thus, if nursing supervisors trust the online healthcare community, they are more likely to share their knowledge. People tend to be influenced to transfer their knowledge when they believe the receivers to be reliable. Thus, greater levels of trust could cause more occurrences of knowledge

sharing since individuals tend to not expect negative outcomes from those they trust and share their knowledge with (Jinyang, 2015a; Gansiniec, 2017; Zafer, 2017).

Secondly, reciprocity is found as factor affecting on knowledge sharing behaviour among nursing supervisors in online healthcare communities. The result implies that knowledge sharing behaviour in nursing supervisors relied on the norm of reciprocity. This result has been approved along with other studies who argued that reciprocity affects knowledge sharing, and it becomes better to share knowledge when individuals have reciprocity. Fen Lin (2007) mentioned that when individuals have reciprocity, this affects knowledge sharing of employees in a positive way. This fact means that knowledge sharing behaviour can be enhanced through reciprocity in online healthcare communities. These findings are parallel to the social exchange theory. In an exchange relationship, the relationship between the two parties is based on social exchanges. As a give and take process, when nursing supervisors share important knowledge to others, other members of the community are bound to share knowledge of equal importance. Therefore, when nursing supervisors have a reciprocal relationship with the community, they are likely to share their knowledge with the members.

Thirdly, this study found that reputation is also another factor that influencing knowledge sharing behaviour among nursing supervisors in online healthcare communities in private hospitals in Jordan. In addition to the direct influence of reputation, this result implies that nursing knowledge sharing behaviour can also be improved and enhanced by the reputation of nursing supervisors in online healthcare communities. These findings are also parallel to a number of studies that elaborated the relationship between reputation and knowledge sharing behaviour (Jin et al., 2016; Zhang Deng et al., 2017a). Ramsaran-Fowdar (2005), noted that reputation is a crucial element for practitioners in healthcare knowledge sharing because individuals who are seeking health advice rely heavily on word-of-mouth advice during the selection of their practitioners, which depends greatly on the practitioner's reputation. Likewise, Yan et al. (2016b), claimed that health practitioners share a considerable amount of knowledge in advance for the sake of their professionsal reputations. They considered reputation as a critical factor by which to proceed with knowledge sharing in online healthcare communities by giving a value to their working reputation and practice. Due to the fact that online systems record

knowledge contribution rankings for members of online healthcare communities, the contributors become known to other community members, thereby increasing their reputation (Agarwal, 2007). This was approved by Phang, Kankanhalli, & Sabherwal (2009), when they reported that reputation includes the posters of individuals who provide a great motivation to share knowledge and contribute. In addition, several studies reported that reputation is a key element in the knowledge sharing process of individuals which can improve their behaviours to share and exchange information related to their knowledge and practices (Lai & Hsieh, 2013; Lai & Teng, 2014; Sun et al., 2014).

This result affirms that reputation could provide a valuable source of advice for nursing supervisors to use and share their knowledge in online health care communities. One way to enhance the reputation and knowledge sharing behaviours is to answer questions and provide treatment advice. Thus, in line with the theory of social exchange, the present study found that when nursing supervisors have a good reputation, they would be more inclined to share more knowledge in online communities. The findings also indicate that reputation has significance on knowledge sharing behaviour. Nursing members who obtain benefits from the online healthcare community (e.g. recommendations, rating) are more likely to share their knowledge.

Nursing members who obtain benefits from the online healthcare community (e.g. recommendations, rating) have the tendency to share their knowledge, mostly looking to increase their reputation; thus, in an exchange relationship, they will share knowledge to gain an enhanced reputation. These results extend our understanding of reputation and its influence on knowledge sharing, especially in the context of online healthcare communities in Jordan's context.

Fourthly, this study found that ability to share is a determinant of knowledge sharing behaviour in online healthcare communities in private hospitals in Jordan. This result was supported by the literature which shows that the ability to share is relevant for knowledge sharing (Lin & Lin, 2007; Radaelli.,2014; Spiller, 2016; Sun et al., 2014).

This result may explain that the knowledge sharing behaviour can be improved and enhanced directly when nursing supervisors are able to share knowledge via online

healthcare communities. When nursing supervisors have the ability to share their knowledge, they are likely to participate in knowledge sharing in online healthcare communities. Thus, these results extend our understanding of the ability to share together with its association with knowledge sharing behaviour in online healthcare communities in the context of Jordanian online healthcare communities.

The second objective of this study is to assess the moderating effect of knowledge self-efficacy on the relationship between individual factors and knowledge sharing behaviour among nursing supervisors in online healthcare communities in Jordan. First, it was found that knowledge self-efficacy acts as a moderator between trust and knowledge sharing behaviour in online health care communities. If an individual has a strong sense of knowledge self-efficacy, he or she will have no problem in sharing (Kankanhalli et al. 2005; Min Lai & Hsieh, 2013).Knowledge self-efficacy among nursing supervisors can increase the effect of trust on knowledge sharing behaviour in online healthcare communities in Jordan. With higher knowledge self-efficacy, the effect of trust on the part of nursing supervisors is more positive and effective regarding their knowledge sharing behaviour. In line with Social Cognitive Theory, this finding suggests that nursing knowledge sharing behaviour increases with their ability to control or behave.

Secondly, knowledge self-efficacy (interaction between knowledge self-efficacy and reciprocity) was found as the moderator between reciprocity and knowledge sharing behaviour among nursing supervisors in online healthcare communities. The findings of this study indicated that reciprocity has both a significant and negative effect of knowledge sharing behaviour. According to Min Lai & Hsieh (2013) found that reciprocity was a critical motivator of continued knowledge-sharing behaviour for people with a low level of knowledge self-efficacy. More specifically, the moderating effect of knowledge self-efficacy between reciprocity and knowledge sharing behaviour implies that an individual with low knowledge self-efficacy is more reciprocal to share knowledge than an individual with a high score of knowledge self-efficacy.

Thirdly, the present study also found that knowledge self-efficacy acts as an moderator between reputation and knowledge sharing behaviour. The moderating effect of knowledge self-efficacy on reputation and knowledge sharing behaviour implies that the

effect of reputation on knowledge sharing behaviour was high for the employee having a high level of self-efficacy. According to Lai et al. (2013), reputation had a strong influence on knowledge contributors with high levels of knowledge self- efficacy. This significance of the moderating role of knowledge sharing between reputation and knowledge sharing is also in line with social cognitive theory. As stated, the theory asserts that behaviour is the product of an individual's past experience and his or her level of self-efficacy.

Based on the findings, knowledge self efficacy increases the effectiveness of reputation in enhancing the knowledge sharing behaviours among nursing supervisors. Thus, nursing supervisors who gain reputation from online communities and have higher knowledge self efficacy will be more likely to share knowledge in OHC. The present study extends our understanding of the moderating role of knowledge self-efficacy between reputation and knowledge sharing behaviour. It also extends our understanding of the applicability of knowledge self efficacy among nursing supervisors working in online health communities, more specifically, in Jordan.

Finally, this study knowledge self-efficacy does not act as a moderator ability between ability to share and knowledge sharing behaviour. This result might be due to inadequate knowledge sharing activities at private hospitals. This may have resulted in a view that knowledge self-efficacy does not support their ability to share in OHC. In addition, this result is consistent with Sitharthan et al. (2001), who stated that self-efficacy does not always moderate the relationship between two personal variables. Thus, the results obtained may confirm the findings of (Sitharthan et al., 2001). The proposed model in this study tested the moderating effect of knowledge self-efficacy interaction between knowledge sharing behaviour and the ability to share. The results of the model shown in Table 5.1. The relationship between the ability to share and knowledge sharing behaviour with the moderating effect was negative and not statistically significant. The Figure 5.1 shows final model of the study after removing the insignificant relation.

Table 5.1: List of Hypotheses and Relative Paths

Hypothesis	Path	β	p-value	Result
H1: Trust will have a positive significant effect on knowledge sharing behaviour in online health communities.	TRUST → KSB	0.209	0.001***	Supported
H2: Reciprocity will have a positive significant effect on knowledge sharing behaviour in online health communities.	REC → KSB	0.222	0.002***	Supported
H3: Reputation will have a positive significant effect on knowledge sharing behaviour in online health communities.	REP → KSB	0.172	0.020**	Supported
H4: Ability will have a positive significant effect on knowledge sharing behaviour in online health communities.	ABS → KSB	0.334	0.001***	Supported
H5: Knowledge Self-efficacy moderate the relationship between trust and knowledge sharing behaviour.	KSE TRUST → KSB	0.149	0.030**	Supported
H6: Knowledge Self-efficacy moderate the relationship between reciprocity and knowledge sharing behaviour.	KSE REC → KSB	-0.167	0.018**	Supported
H7: Knowledge Self-efficacy moderate the relationship between reputation and knowledge sharing behaviour.	KSE REP → KSB	0.192	0.001***	Supported
H8: Knowledge Self-efficacy moderate the relationship between the ability to share and knowledge sharing behaviour.	KSE ABS → KSB	-0.119	0.073	Not Supported

Note: ***: $p<0.01$; **: $p<0.05$;

KSB: knowledge sharing behaviour, TRUST: Trust, REP: reputation, KSE: knowledge self-efficacy, REC: Reciprocity, ABS: ability to share.

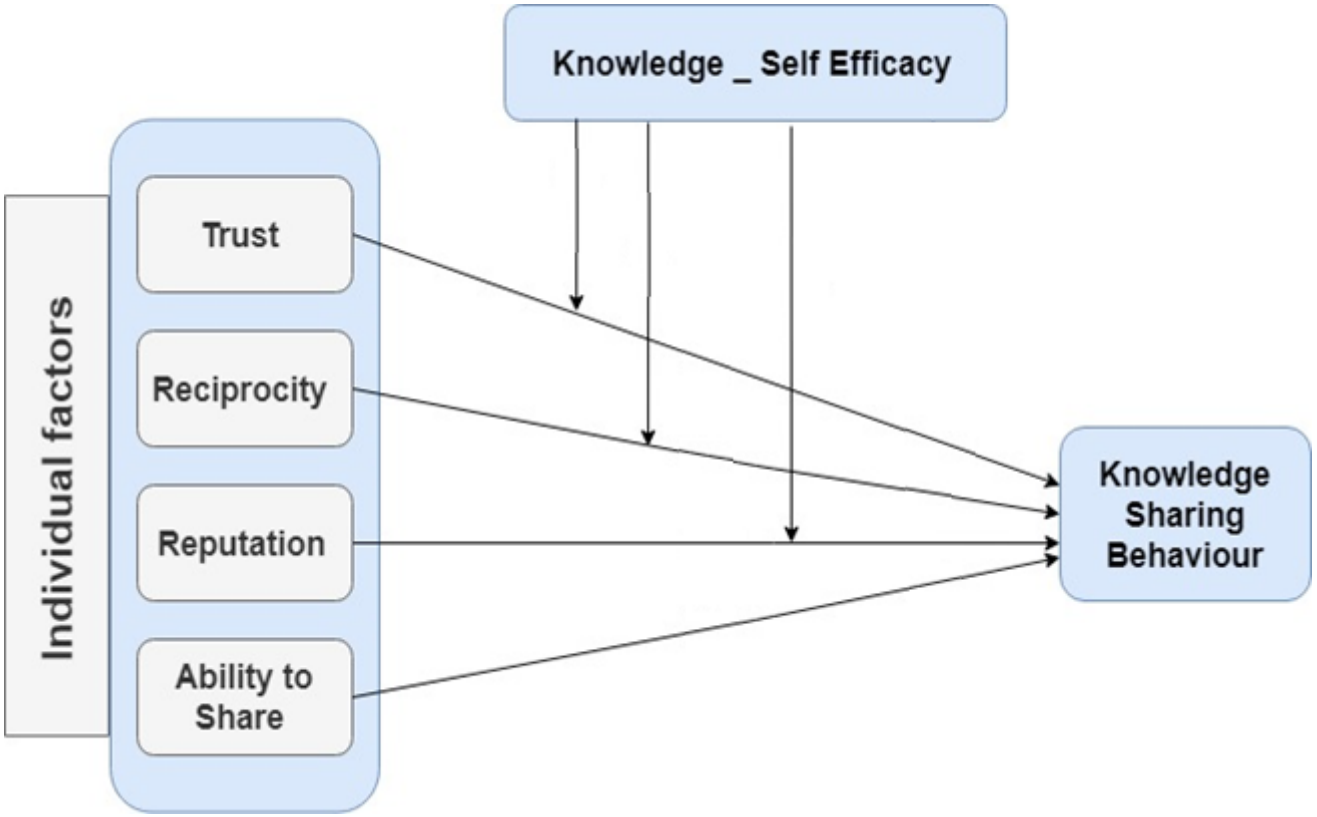

Figure 5.1 Final model

5.3 Implications of findings

This study contributes significantly to the body of the knowledge regarding social exchange theory and social cognitive theory, in addition to individual factors (trust, reciprocity, reputation, and ability to share), knowledge self-efficacy and knowledge sharing behaviour). Secondly, there were practical contributions in that the study offers several implications for private hospitals in Amman regarding the key roles of individual factors (trust, reciprocity, reputation, ability to share) and knowledge self-efficacy in achieving a suitable level of knowledge sharing behaviour.

5.3.1 Theoretical Contributions

This study attempts to expand the literature in terms of knowledge sharing behaviour, individual factors, and knowledge self-efficacy by making several contributions. In terms of the Social Exchange Theory and Social Cognitive Theory, the study significantly contributes to the body of knowledge by conceptualizing a research framework, which reflects the moderating role of knowledge self-efficacy on the relationships between individual factors and knowledge sharing behaviour.

Examining this framework in the healthcare sector in Jordan is not only considered to offer an extension of the literature, but is also considered to be a key contribution to bridging the gaps in the existing literature by providing a comprehensive understanding of the above moderating effect and the relationships. These individual factors in terms of trust, reciprocity, reputation and ability to share were integrated into this study to examine the effects of individual factors on knowledge sharing behaviour. This integration considered as a significant contribution to knowledge sharing literature. Moreover, the findings of the current study are an additional contribution, not only to the online healthcare communities' literature, but also to the studied theories in that these findings emerged after utilizing the Social Exchange Theory and Social Cognitive Theory, in investigating the relationship between individual factors and knowledge sharing behaviour among nursing supervisors in online healthcare communities with the moderating role of knowledge self-efficacy.

Hence, this study presents to the literature a significant theoretical contribution by examining this linkage in two directions. Firstly, the direct effects of the individual factors in terms trust, reciprocity, reputation and ability to share on knowledge sharing behaviour. Secondly, the direct effect of individual factors on knowledge sharing behaviour with the moderating role of knowledge self-efficacy. Therefore, the current study presents new theoretical contributions, which in turn enrich the body of knowledge. This contribution displays the moderating role of knowledge self-efficacy in the relationship between individual factors and knowledge sharing behaviour.

Moreover, the findings of the study confirm the legitimacy of the underlying theories used in the current study. In particular, the significant relationship between individual factors and the knowledge sharing behaviour enhances the Social Exchange Theory and Social Cognitive Theory. To sum up, the findings of the study justify the usage of these theories to linking the studied variables- knowledge sharing behaviour, individual factors, and knowledge self-efficacy.

5.3.2 Practical Contributions

The findings of the study concluded that substantial benefits could be given to private hospitals to improve the knowledge sharing behaviour of nursing supervisors of Amman private hospitals in online healthcare communities. This could be achieved by helping the nursing supervisors to understand important factors that could affect their knowledge sharing behaviour in online healthcare communities. Such an outcome would be helpful to Jordanian private hospitals in obtaining a better understanding of the main factors increasing the knowledge sharing behaviour of nursing supervisors. The role of individual factors includes trust, reciprocity, and reputation which have been shown to improve the knowledge sharing on the online healthcare communities.

Additionally, this study provides practical contributions regarding the role of knowledge self-efficacy as a predictor of a knowledge sharing behaviour. Specifically, the results provide clear evidence that the knowledge self-efficacy as when it comes to a knowledge sharing behaviour in the private hospitals in online healthcare communities in Jordan. This contribution offers clear insights for top management in the private hospitals in

online healthcare communities in Jordan, as a means of avoiding many of the challenges that effect the knowledge sharing an aspect which was addressed in this study (Dammaj et al., 2016).

The management can apply these findings in setting in place the respective plan of supporting knowledge self-efficacy. For example; specific time should be allocated for supervisors to share knowledge via online healthcare communities, and connect sharing amounts to a "points system". The management could arrange workshops and seminars to increase knowledge self-efficacy among nursing supervisors in order to increase knowledge sharing behaviour among its communities. Overall, this study gives top management at the private hospitals more understanding about how knowledge self-efficacy can encourage nursing supervisors to share their knowledge in online healthcare communities.

5.4 Limitations of the Study

Regardless of the above significant contributions, this study encountered some limitations, as is the case with any social studies research. The first limitation, the generalizability of the findings of the current study, is limited in two aspects. In particular, the study involved one representative from among the nursing supervisors of each department in the hospitals. However, other employees were not considered when it came to make up the sample for the study. Secondly, the study was restricted to private hospitals in Jordan. Therefore, the findings may not be generalizable to other sectors in Jordan or other countries. Hence, similar studies could be conducted in other sectors to include considering more employees during the survey. The third limitation of the study is that it involved only private hospitals in Amman. This could extend to other hospitals in different regions or other healthcare sectors in the future.

5.5 Future Research

The findings of this study offer a basis for further research in the future in order to achieve more generalizability and to overcome the above limitations. Regarding the research design, future research might combine both qualitative and quantitative approaches in order to measure the research variables. This mixed method design could provide a better understanding of the research problem and provide more alternative perspectives (Creswell, 2012).

Regarding the populations and sampling techniques, future researchers might conduct a similar study in other sectors in Jordan, such as the education and financial sectors. In addition, researchers could conduct a similar study in other countries after adapting the variables to suit their society's contexts. To go beyond this, future researchers might conduct a study in order to address employees and top management perspectives, with the study following a comparative approach in terms of data analysis.

Future research could reconsider the measurement of the study variables. This reconsideration may be achieved in two ways. Firstly, increasing the number of items in some variables would strengthen the accuracy of the measured results. Secondly, researchers could increase the number of constructs with regard to individual factors. Moreover, the research framework of this study shapes the moderating role of the relationship between individual factors and knowledge sharing behaviour.

Here, future research could go for further empirical investigation by adding new variables as independent, dependent, or moderating variables or extend the investigation to more regions in Jordan. Moreover, future research may go through more investigation on negative results. This could include significant negative and non-significant results in this study such as the reciprocity and ability to share through the moderating effect of knowledge self-efficacy respectively.

5.6 Conclusion

This study has been conducted to achieve the two research objectives, which were outlined in Chapter One. The first objective is to identify the individual factors effecting knowledge sharing behaviour among nursing supervisors in online healthcare communities. The second objective is to assess the moderating effect of knowledge self-efficacy on the relationship between individual factors and knowledge sharing behaviour in online healthcare communities. Consequently, the six main variables considered in the current study were trust, reciprocity, reputation, ability to share, knowledge sharing behaviour, and knowledge self-efficacy respectively. These were deduced from the literature through a systematic methodological process in which the above-mentioned variables were chosen to be investigated in the present study. The researcher has proposed a model that combines the selected variables based on two well-known theories, namely, Social Exchange Theory and Social Cognitive Theory. These theories showed that such combination of variables can be merged into one model.

The first model was related to the direct effects, while the second was related to the moderating effects. Regarding the direct effects model, the results indicated that the direct effect of all the independent variables on knowledge sharing behaviour is statistically significant which means a higher level of these individual factors would improve the level of knowledge sharing behaviour among nursing supervisors. In addition, moderator variables in the second model showed that knowledge self-efficacy had a significant moderating effect on the relationship between trust and reputation. With knowledge sharing behaviour, this result implies that knowledge self-efficacy negatively moderated the relationship between reciprocity and knowledge sharing behaviour . This means that when the knowledge self-efficacy of the individual is high, an individual's tendency to obtain and share knowledge will be reduced. Conversely, if knowledge self-efficacy is low, the individual's tendency to share knowledge will increase. The moderation of knowledge self-efficacy between the relationship of the ability to share and knowledge sharing behaviour was not statistically significant.

Regarding the direct effects model, the results showed that the first model measured using the direct impact of the individual factors in terms (trust, reciprocity, reputation and

ability to share) on the Knowledge Sharing Behaviour which all the hypotheses supported. Regarding the moderating effects model the second model that includes the moderator effect shows that all hypotheses were accepted with the exception of one hypothesis which found that the ability to share was not affected by knowledge sharing behaviour via the moderating effect of knowledge self-efficacy. Self-efficacy does not always moderate the correlation between two personal variables (Sitharthan et al, 2001).

This study contributes significantly to the body of the knowledge regarding the integration of Social Exchange Theory and Social Cognitive Theory. This study offers several implications for private hospitals in Amman regarding the key roles of individual factors and knowledge self-efficacy in improving knowledge sharing behaviour among nursing supervisors in online healthcare communities.

Future research can explore new variables as independent, dependent, or moderating variables such as organizational and environmental factors, or extend the investigation to more regions and sectors such as education and financial. Moreover, future research may go through more investigation on negative results. This could include significant negative and non-significant results in this study such as ability to share through the moderating effect of knowledge self-efficacy respectively.

REFERENCES

Abdul jalal, Toulson & Tweed (2013). Knowledge Sharing Success for Sustaining Organizational Competitive Advantage. *Procedia Economics and Finance*, *7*(Icebr), 150–157. https://doi.org/10.1016/S2212-5671(13)00229-3

Abzari, Shahin & Abasaltian (2016). Studying the Impact of Personality Constructs on Employees ' Knowledge Sharing Behavior Through Considering the Mediating Role of Intelligent Competencies in Project-Oriented Organizations. *Canadian Center of Science and Education*, *10*(6), 194. https://doi.org/10.5539/mas.v10n6p194

Aiken, West, Reno (1991). Multiple regression: Testing and interpreting interactions. Sage.

Alali & Salim (2013). Virtual Communities of Practice Success Model to Support Knowledge Sharing Behaviour in Healthcare Sector. *Procedia Technology*, *11*(Iceei), 176–183. https://doi.org/10.1016/j.protcy.2013.12.178

Alaszewski, Horlick-Jones (2003). How can doctors communicate information about risk more effectively? *BMJ: British Medical Journal*, *327*(7417), 728.

Alavi & Tiwana (2003). Knowledge management: The information technology dimension. *The Blackwell Handbook of Organizational Learning and Knowledge Management*, 104–121.

Alhalhouli (2014). Factors Affecting Knowledge Sharing Behavior among Stakeholders in Jordanian Hospitals Using Social Networks. 03(05), 919–928.

Ali & Dominic (2016). Organizational and individual factors impact on knowledge sharing practice: The association with cost reduction. *2016 3rd International Conference on Computer and Information Sciences (ICCOINS)*, 536–541. https://doi.org/10.1109/ICCOINS.2016.7783272

Alireza, Bin Baba, Tamjid, Gholipour (2013). Information security - Professional perceptions of knowledge-sharing intention under self-efficacy, trust, reciprocity, and shared-language. *Computers and Education*, *68*, 223–232. https://doi.org/10.1016/j.compedu.2013.05.010

Alsharo, Sibona, Alnsour (2016). Online Video Reviews Helpfulness: Exploratory Study. *Twenty-second Americas Conference on Information Systems, San Diego*

Andrawina, Govindaraju, Samadhi (2008). Absorptive capacity moderates the relationship between knowledge sharing capability and innovation capability. *Industrial Engineering and Engineering Management, 2008. IEEM 2008. IEEE International Conference On*, 944–948. IEEE.

Armitage, Conner (1999). Predictive validity of the theory of planned behaviour: The role of questionnaire format and social desirability. *Journal of Community & Applied Social Psychology*, *9*(4), 261–272.

Aslam, Safdar, Shafiq, Khan (2018). Does Self Efficacy Moderate the Relationship between Knowledge Sharing and Organizational Citizenship Behavior ? (A quantitative Research in Civil Secretariat Quetta). 7(3), 232–238.

Assegaff (2016). Barriers factors in contributing knowledge at virtual communities (a literature review). *Informatics and Computing (ICIC), International Conference On*, 72–77. IEEE.

Ba, Stallaert, Whinston (2001). Research commentary: introducing a third dimension in information systems design—the case for incentive alignment. *Information Systems Research*, *12*(3), 225–239.

Bagozzi, Yi (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*(1), 74–94.

Bandura (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191.

Bandura (1986). Fearful expectations and avoidant actions as coeffects of perceived self-inefficacy, *American Psychologist*, 41, 1389-1391.

Bandura (1989). Human agency in social cognitive theory. *American Psychologist*, *44*(9), 1175.

Bandura (1999). Social cognitive theory of personality. *Handbook of Personality: Theory and Research*, 154–196.

Bandura (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, *52*(1), 1–26.

Bandura, Adams, Beyer (1977). Cognitive processes mediating behavioral change. *Journal of Personality and Social Psychology*, *35*(3), 125.

Barak, Boniel-Nissim, Suler (2008). Fostering empowerment in online support groups. *Computers in Human Behavior*, *24*(5), 1867–1883.

Bartol, Liu, Zeng, Wu (2009). Social exchange and knowledge sharing among knowledge workers: The moderating role of perceived job security. *Management and Organization Review*, *5*(2), 223–240.

Bashir, Usoro, Khan (2014). Knowledge Sharing in Virtual Communities: A Comparison of Three Different Cultures. *European Conference on Knowledge Management*, *3*, 1108. Academic Conferences International Limited.

Baskerville, Dulipovici (2006). The theoretical foundations of knowledge management. *Knowledge Management Research & Practice*, *4*(2), 83–105.

Batista, Monard (2003). An analysis of four missing data treatment methods for supervised learning. *Applied Artificial Intelligence*, *17*(5–6), 519–533.

Baxter (2002). An introduction to online communities. *Bristol, England: SIFT Group Ltd*.

Bender, Jimenez-Marroquin, Jadad (2011). Seeking support on facebook: a content analysis of breast cancer groups. *Journal of Medical Internet Research*, *13*(1).

Bertram, (2007). Likert scales. *Retrieved November*, *2*, 2013.

Betz, Klein, Taylor (1996). Evaluation of a short form of the career decision-making self-efficacy scale. *Journal of Career Assessment*, *4*(1), 47–57.

Blau (1964). Justice in social exchange. *Sociological Inquiry*, 34(2), 193-206.

Blau (1964). *Exchange and Power in Social Life*. New York: Wiley.

Blau, Peter (1964). Justice in Social Exchange. *Sociological Inquiry*, *34*(2), 193–206. https://doi.org/10.1111/j.1475-682X.1964.tb00583.x

Blau, Peter Michael. (1964). Social exchange theory. *Retrieved September*, *3*, 2007.

Bock, Zmud, Kim, Lee, (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly*, 87–111.

Bock, Kim (2001). Breaking the Myths of Rewards : An Exploratory Study of Attitudes about Knowledge Sharing, *Information Resources Management Journal (IRMJ)*, 15(2), 14-21.

Bock, Kim (2002). Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing. *Information Resources Management Journal (IRMJ)*, *15*(2), 14–21.

Booth, (2012). Cultivating knowledge sharing and trust in online communities for educators. *Journal of Educational Computing Research*, *47*(1), 1–31.

Bouma & Rutkowski (2011). Smarter Knowledge Sharing (Doctoral dissertation, Tilburg University).

Brunetto, Shacklock, Teo, Farr-Wharton, Nelson, (2015). Nurses' supervisors, learning options and organisational commitment: Australia, Brazil and England. *Journal of Nursing Management*, *23*(8), 1029–1038. https://doi.org/10.1111/jonm.12249

Bulan, Sensuse (2012). Knowledge Sharing Model Among Academic Staffs in Universities. *Journal of Information System*, *8*(2), 133–139. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:No+Title#0

Burke, Estrin, Hansen, Parker, Ramanathan, Reddy & Srivastava (2006). Participatory sensing, UCLA: *Center for Embedded Network Sensing*, 1-5.

Cabrera, Collins, Salgado (2006). Determinants of individual engagement in knowledge sharing. *The International Journal of Human Resource Management*, *17*(2), 245–264.

Chai, Das, Rao (2011). Factors affecting bloggers' knowledge sharing: An investigation across gender. *Journal of Management Information Systems*, *28*(3), 309–342.

Chai, Das, Rao (2014). Factors Affecting Bloggers' Knowledge Sharing: An Investigation Across Gender SANGMI. *Journal of Management Information*, *28*(3), 309–342. https://doi.org/10.2753/MIS0742-1222280309

Chang, Chuang (2011). Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator. *Information & Management*, *48*(1), 9–18.

Charband, Navimipour (2016). Online knowledge sharing mechanisms : a systematic review of the state of the art literature and recommendations for future. *Springer Science+BusinessMedia New York*. https://doi.org/10.1007/s10796-016-9628-z

Chau, Hu (2002). Examining a model of information technology acceptance by individual professionals: An exploratory study. *Journal of Management Information Systems*, *18*(4), 191–229.

Chaudhry (2005), 'Knowledge Sharing Practices in Asian Institutions: A Multi-cultural Perspective from Singapore', *Proceedings of the 7th IFLA General Conference and Council of the World Library and Information Congress*, Oslo, Norway.

Chen, Hung (2010). To give or to receive? Factors influencing members' knowledge sharing and community promotion in professional virtual communities.

Information and Management, *47*(4), 226–236. https://doi.org/10.1016/j.im.2010.03.001

Chen, Chuang, Chen (2012). Knowledge-Based Systems Behavioral intention formation in knowledge sharing : Examining the roles of KMS quality , KMS self-efficacy , and organizational climate. *Knowledge-Based Systems*, *31*, 106–118. https://doi.org/10.1016/j.knosys.2012.02.001

Cheng (2008). Trust and knowledge sharing in green supply chains. *Supply Chain Management: An International Journal*, *13*(4), 283–295.

Chennamaneni, Teng, Raja (2012). A unified model of knowledge sharing behaviours: theoretical development and empirical test. *Behaviour & Information Technology*, *31*(11), 1097–1115.

Cherian, Jacob (2013). Impact of Self Efficacy on Motivation and Performance of Employees. *International Journal of Business and Management*, *8*(14), 80–88. https://doi.org/10.5539/ijbm.v8n14p80

Cheung, Lee (2013). Understanding the continuance intention of knowledge sharing in online communities of practice through the post-knowledge-sharing evaluation processes. *Journal of the Association for Information Science and Technology*, *64*(7), 1357–1374.

Chin (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, *295*(2), 295–336.

Chiu, Hsu, Wang (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*, *42*(3), 1872–1888.

Chiu, Hsu, Wang (2006). Understanding knowledge sharing in virtual communities : An integration of social capital and social cognitive theories. 42, 1872–1888. https://doi.org/10.1016/j.dss.2006.04.001

Clark, Watson (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, *7*(3), 309.

Cline, Haynes (2001). Consumer health information seeking on the Internet: the state of the art. *Health Education Research*, *16*(6), 671–692.

Cohen (1992). A power primer. *Psychological Bulletin*, *112*(1), 155.

Compeau, Higgins, Huff (1999). Social cognitive theory and individual reactions to computing technology: A longitudinal study. *MIS Quarterly*, 145–158.

Compeau, Higgins (1995). Application of social cognitive theory to training for computer skills. *Information Systems Research*, *6*(2), 118–143.

Connell, Kriz, Thorpe, Connell, Kriz, Thorpe (2014). *Industry clusters : an antidote for knowledge sharing and collaborative innovation ?* https://doi.org/10.1108/JKM-08-2013-0312

Constant, Sproull, Kiesler (1996). The kindness of strangers: The usefulness of electronic weak ties for technical advice. *Organization Science*, *7*(2), 119–135.

Coulter, Entwistle, Gilbert (1999). Sharing decisions with patients: is the information good enough? *BMJ: British Medical Journal*, *318*(7179), 318.

Creswell (2013). qualitative inquiry & research design: Choosing Among Five Approaches (3rd ed.). Sage Publications.

Creswell (2012). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research. Retrieved from https://books.google.com.my/books

Creswell, John (2012). Research Design: Qualitative and Quantitative Approaches. *Thousand Oaks*.

Creswell (2008). Research design: Qualitative, quantitative, and mixed methods approaches. *Thousand Oaks, CA: Sage*.

Cropanzano, Mitchell (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, *31*(6), 874–900.

Cross, Borgatti, Parker (2001). Beyond answers: dimensions of the advice network. *Social Networks*, *23*(3), 215–235.

Dammaj, Alawneh, Sweis (2016). Investigating the relationship between knowledge sharing and service quality in private hospitals in Jordan Ayman Abu Hammad. *Productivity and Quality Management*, *17*(4), 437–455.

Davenport and Prusak (1998), Working Knowledge: How Organizations Manage What They Know, Harvard Business School Press, *Cambridge, MA.*

Davison, & Martinsons (2013). Information technology to support informal knowledge sharing. *Information Systems Journal*, *23*(1), 89–109.

Diamantopoulos, Riefler, Roth (2008). Advancing formative measurement models. *Journal of Business Research*, *61*(12), 1203–1218.

Dong, Chang, Wang, Yan, Dong, Chang (2017). Understanding usage of Internet of Things (IOT) systems in China Cognitive experience and affect experience as moderator. *Emerald Publishing Limited*, *30*(1), 177–138.

Donna, bennett & Kim (2012). Knowledge sharing and institutionalism in the healthcare industry. *Journal of Knowledge Management*. https://doi.org/10.1108/13673271211238788

Ellis (2020). Investigate the Extrinsic and Intrinsic Motivational Factors of Knowledge Transfer in the Hospitals. 63(1), 1–8.

Esmaeilzadeh, Sambasivan, Kumar, Nezakati (2015). Adoption of clinical decision support systems in a developing country: antecedents and outcomes of physician's threat to perceived professional autonomy. *International Journal of Medical Informatics*. https://doi.org/10.1016/j.ijmedinf.2015.03.007

Eysenbach, Jadad (2001). Evidence-based patient choice and consumer health informatics in the Internet age. *Journal of Medical Internet Research*, *3*(2).

Faizuniah Pangil (2014). The mediating effect of knowledge sharing on the relationship between trust and virtual team effectiveness. 18(1), 92–106. https://doi.org/10.1108/JKM-09-2013-0341

Fan, Lederman, Smith & Chang (2014). How trust is formed in online health communities: A process perspective. *Communications of the Association for Information Systems*, *34*(1), 531–560.

Feng & Ye (2016). Why do you return the favor in online knowledge communities? A study of the motivations of reciprocity. *Computers in Human Behavior*, *63*, 342–349.

Ferrari, Meyer, Scardaci, Casiraghi, Lazzeri, Mauri, Roth (2006). Raman spectrum of graphene and graphene layers. *Physical Review Letters*, *97*(18), 187401.

Font, Garay, & Jones (2016). Annals of Tourism Research A Social Cognitive Theory of sustainability empathy. *Annals of Tourism Research*, *58*, 65–80. https://doi.org/10.1016/j.annals.2016.02.004

Foos, Schum, & Rothenberg (2006). Tacit knowledge transfer and the knowledge disconnect. *Journal of Knowledge Management*, *10*(1), 6–18.

Forces, Climate, Bock, Zmud, Kim, & Lee (2013). behavioral intention formation Knowledge Sharing : Examining the Roles of Extrinsic Motivators , and Organizational. 29(1), 87–111.

Ford (1996). A theory of individual creative action in multiple social domains. *Academy of Management Review*, *21*(4), 1112–1142.

Fornell, Larcker (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39–50.

Foss, Minbaeva, Pedersen, & Reinholt (2009). Encouraging knowledge sharing among employees: How job design matters. *Human Resource Management*, *48*(6), 871–893.

Fox & Jones (2009). Americans' pursuit of health takes place within a widening network of both online and offline sources. *Washington, DC: Pew Research Center's Internet and American Life Project and the California HealthCare Foundation*.

Gambetta (2000). Can we trust trust. Trust: Making and Breaking Cooperative Relations, 13, 213–237.

Garson (2008). Factor Analysis: Statnotes. Retrieved March 22, 2008, from North Carolina State University, *Public Administration Program*.

Gider, Ocak & Top (2015). Perceptions of Physicians About Knowledge Sharing Barriers in Turkish Health Care System. *BusinessMedia New York*. https://doi.org/10.1007/s10916-015-0230-6

Goeuriot, Kyaing, Khoo, Theng, Chang & Foo (2011). Textual and Informational Characteristics of Drug-Related Content on Three Kinds of Websites: Drug Review Website, Discussion Board and Hospital Information Portal. *International Journal of Organizational and Collective Intelligence (IJOCI)*, *2*(3), 27–49.

Goh & Sandhu (2013). Affiliation, reciprocal relationships and peer pressure in knowledge sharing in public universities in Malaysia. *Asian Social Science*, *9*(7), 290–298. https://doi.org/10.5539/ass.v9n7p290

Grant (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, *17*(S2), 109–122.

Gupta & Govindarajan (2000). Knowledge flows within multinational corporations. *Strategic Management Journal*, *21*(4), 473–496.

Hair, Sarstedt, Hopkins, & Kuppelwieser (2014). Partial least squares structural equation modeling (PLS-SEM). *European Business Review*, *26*(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Hair, Joe, Ringle & Sarstedt (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139–152.

Hair, Black, Babin, Anderson & Tatham (2006). Multivariate data analysis, *Prentice-Hall International Inc.*, Upper Saddle River, NJ, 6.

Hair , Hult, Ringle & Sarstedt (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage, Thousand Oaks, CA.

Hara & Foon Hew (2007). Knowledge-sharing in an online community of health-care professionals. *Information Technology & People*, *20*(3), 235–261.

Hashim & Tan (2015). The mediating role of trust and commitment on members' continuous knowledge sharing intention: A commitment-trust theory perspective. *International Journal of Information Management*, *35*(2), 145–151.

Hassandoust, Logeswaran, R., & Farzaneh Kazerouni, M. (2011). Behavioral factors influencing virtual knowledge sharing: theory of reasoned action. *Journal of Applied Research in Higher Education*, *3*(2), 116–134.

Hau, Kim, Lee & Kim (2013). The effects of individual motivations and social capital on employees??? tacit and explicit knowledge sharing intentions. *International Journal of Information Management*, *33*(2), 356–366. https://doi.org/10.1016/j.ijinfomgt.2012.10.009

Havakhor, Soror & Sabherwal (2018). Diffusion of knowledge in social media networks: effects of reputation mechanisms and distribution of knowledge roles. *Information Systems Journal*, *28*(1), 104–141. https://doi.org/10.1111/isj.12127

Hawley, Harker & Harker (2010). A social cognitive approach to tackle inactivity and obesity in young Australians. *Journal of Business Research*, *63*(2), 116–120.

Hejase, Haddad, Hamdar, & Ali (2014). Knowledge Sharing : Assessment of Factors Affecting Employee ' Motivation and Behavior in the Lebanese Organizations Knowledge Sharing : Assessment of Factors Affecting Employee ' Motivation and Behavior in the Lebanese Organizations. *Resarch Gate*, *12*(3), 1549–1593. https://doi.org/10.9734/JSRR/2014/8107

Hendriks (1999). Why share knowledge? The influence of ICT on the motivation for knowledge sharing. *Knowledge and Process Management*, *6*(2), 91.

Henseler (2017). Bridging design and behavioral research with variance-based structural equation modeling. *Journal of Advertising*, *46*(1), 178–192.

Henseler, Ringle & Sarstedt (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135.

Henseler, Ringle & Sinkovics (2009). The use of partial least squares path modeling in international marketing. In *New challenges to international marketing* (pp. 277–319). Emerald Group Publishing Limited.

Hertzog (2008). Considerations in determining sample size for pilot studies. *Research in Nursing & Health*, *31*(2), 180–191.

Hidding & Catterall (1998). Anatomy of a learning organization: turning knowledge into capital at Andersen Consulting. *Knowledge and Process Management*, *5*(1), 3–13.

Hoegl, Parboteeah, Munson (2003). Team-level antecedents of individuals' knowledge networks. *Decision Sciences*, *34*(4), 741–770.

Holmes, Oppenheim (2001). Use of citation analysis to predict the outcome of the 2001 Research Assessment Exercise for Unit of Assessment (UoA) 61: Library and Information Management. *Information Research*, *6*(2), 2–6.

Homans (1958). Social behavior as exchange. *American Journal of Sociology*, *63*(6), 597–606.

Homans (1961). *Human behavior: Its elementary forms*. New York: Harcourt, Brace.

House, Wang, Tseng, Yen, Tseng (2015). How do institutional norms and trust influence knowledge sharing? An institutional theory. *Taylor & Francis* (April 2015), 37–41. https://doi.org/10.1080/14479338.2014.11081994

Hsieh, Lai, & Kuo (2013). Physician acceptance behavior of the electronic medical records exchange: An extended decomposed theory of planned behavior. *Proceedings - Pacific Asia Conference on Information Systems, PACIS 2013*.

Hsu, Lin (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & Management*, *45*(1), 65–74.

Hsu, Yen & Chang (2007). Knowledge sharing behavior in virtual communities : The relationship between trust , self-efficacy , and outcome expectations $. 65, 153–169. https://doi.org/10.1016/j.ijhcs.2006.09.003

Hu, Chiou, Lin (2012). Effects of Social Exchange and Trust on Knowledge Sharing and Service Innovation. *Social Behavior and Personality*, *40*(5), 783–800. https://doi.org/http://dx.doi.org/10.2224/sbp.2012.40.5.783

Huang, Davison (2008). Impact of personal and cultural factors on knowledge sharing in China. *Asia Pacific Journal of Management*, *25*(3), 451–471.

Hülsheger, Anderson, Salgado (2009). Team-level predictors of innovation at work: a comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology*, *94*(5), 1128.

Hung, Lai, Chou (2015). Knowledge-sharing intention in professional virtual communities: A comparison between posters and lurkers. *Journal of the Association for Information Science and Technology*, *66*(12), 2494–2510.

Igbaria, Iivari (1995). The effects of self-efficacy on computer usage. *Omega*, *23*(6), 587–605.

Inkpen, Tsang (2005). Social capital, networks, and knowledge transfer. *Academy of Management Review*, *30*(1), 146–165.

Ipe (2003). Knowledge sharing in organizations: A conceptual framework. *Human Resource Development Review*, *2*(4), 337–359.

Ismail, Yusof (2010). The Impact of Individual Factors on Knowledge Sharing Quality. *Journal of Organizational Knowledge Management*, *13*, 1–12. https://doi.org/10.5171/2010.327569

Jackson, Chuang, Harden, Jiang (2006). Toward developing human resource management systems for knowledge-intensive teamwork. *Research in personnel and human resources management*, 25(6), 27-70.

Jadin, Gnambs, Batinic (2013). Personality traits and knowledge sharing in online communities. *Computers in Human Behavior*, *29*(1), 210–216. https://doi.org/10.1016/j.chb.2012.08.007

Jain, Sandhu, Goh (2015). Organizational climate , trust and knowledge sharing : insights from Malaysia. https://doi.org/10.1108/JABS-07-2013-0040

Jain (2010). Googling ourselves—what physicians can learn from online rating sites. *New England Journal of Medicine*, *362*(1), 6–7.

Jarrar, Rahman, Minai, Abumadini & Larbi (2018). The function of patient-centered care in mitigating the effect of nursing shortage on the outcomes of care. *International*

Journal of Health Planning and Management (August 2017), 1–10. https://doi.org/10.1002/hpm.2491

Jarvenpaa, Leidner (1999). Communication and Trust in Global Virtual Teams. *Organization Science, 10*(6), 791–815. https://doi.org/10.1287/orsc.10.6.791

Jeppesen, Frederiksen (2006). Why do users contribute to firm-hosted user communities? The case of computer-controlled music instruments. *Organization Science, 17*(1), 45–63.

Jin, Yan & Li (2016). How users adopt healthcare information: An empirical study of an online Q&A community. *International Journal of Medical Informatics, 86*, 91–103. https://doi.org/10.1016/j.ijmedinf.2015.11.002

Jinyang (2015a). Knowledge Sharing in Virtual Communities : A Social Exchange Theory Perspective. 8(1), 170–183.

Jinyang (2015b). Knowledge sharing in virtual communities: A social exchange theory perspective. *Journal of Industrial Engineering and Management*, *8*(1), 170–183.

Johns (2010). Likert items and scales. *Survey Question Bank: Methods Fact Sheet, 1*, 1–11.

Jones, Hesterly & Borgatti (1997). A general theory of network governance: Exchange conditions and social mechanisms. *Academy of Management Review, 22*(4), 911–945.

Kakabadse, Kakabadse, & Kouzmin (2003). Reviewing the knowledge management literature: towards a taxonomy. *Journal of Knowledge Management, 7*(4), 75–91.

Kankanhalli, Tan & Wei. (2005). Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation. *MIS Quarterly*, *29*(1), 113. https://doi.org/10.2307/25148670

Kanter (2000). When a thousand flowers bloom: Structural, collective, and social conditions for innovation in organization, *Knowledge Management and Organisational Design*, 10, 93-131.

Khosravi, Ahmad (2014). Examining antecedents of knowledge-sharing factors on research supervision : An empirical study. 12(4), 783–813. https://doi.org/10.1007/s10639-014-9354-4

Kim, Kim, Yun (2015). Knowledge Sharing , Abusive Supervision , and Support : A Social Exchange Perspective. *Group & Organization Management*, *40*(5), 599–624. https://doi.org/10.1177/1059601115577514

Kim, Newby-Bennett, Song (2012). Knowledge sharing and institutionalism in the healthcare industry. *Journal of Knowledge Management*, *16*(3), 480–494.

Kline (2005). *Methodology in the social sciences*. Principles and practice of structural equation modeling (2nd ed.). New York, NY, US: Guilford Press.

Kline (2011). *Convergence of structural equation modeling and multilevel modeling. In M. Williams (Ed.), Handbook of methodological innovation*. Thousand Oaks, CA: Sage.

Kline, Rex (2015). *Principles and practice of structural equation modeling. Guilford publications*, New York: Guilford.

Kluska, Merkel & Romanowski (2011). *Health goes Facebook: Social Media in der Gesundheitswirtschaft*, Forschung Aktuell, Institut Arbeit und Technik (IAT), Gelsenkirchen.

Kollock (1999). The economies ol online cooperation. *Communities in Cyberspace*, *220*.

Koskinen, Pihlanto & Vanharanta (2003). Tacit knowledge acquisition and sharing in a project work context. *International Journal of Project Management*, *21*(4), 281–290.

Kothari (2004). Research Methodology Methods and Techniques, new Age International (P) Ltd. *New Delhi.*

Kouzes & Posner (2006). *The leadership challenge*. , Jossey-Bass, San Francisco, CA.

Kreuger, Neuman (2006). Social work research methods: Qualitative and quantitative applications. *Boston and New York: Pearson & Allyn Bacon.*

Krosnick, Presser, Fealing, Ruggles & Vannette (2015). The future of survey research: Challenges and opportunities. *The National Science Foundation Advisory Committee for the Social, Behavioral and Economic Sciences Subcommittee on Advancing SBE Survey Research*, *1-15.*

Lai & Chen (2014). Knowledge sharing in interest online communities: A comparison of posters and lurkers. *Computers in Human Behavior*, *35*, 295–306.

Lai & Hsieh (2013). The Decision to Continue Sharing Knowledge in Virtual Communities: The Moderating Role of Knowledge-Sharing Experience and Knowledge Self-Efficacy. *PACIS*, 15.

Lai & Hsieh (2013). The Decision to Continue Sharing Knowledge in Virtual Communities: The Moderating Role of Knowledge-Sharing Experience and Knowledge Self-Efficacy. *PACIS 2013 Proceedings*, 6–18.

Lai & Teng (2014). Knowledge sharing in interest online communities : A comparison of posters and lurkers. *Computers in Human Behavior*, *35*, 295–306. https://doi.org/10.1016/j.chb.2014.02.004

Leal, Marques, Marques & Cruz (2016). The Influence of Knowledge Sharing on Healthcare Organisations' Performance. *Theory and Applications in the Knowledge Economy*, 354.

Lee & Ma (2012). News sharing in social media: The effect of gratifications and prior experience. *Computers in Human Behavior*, *28*(2), 331–339.

Lee & Hong (2014). Factors Affecting Hospital Employees ' Knowledge Sharing Intention and Behavior , and Innovation Behavior. *Osong Public Health and Research Perspectives*, *5*(3), 148–155. https://doi.org/10.1016/j.phrp.2014.04.006

Lee, Shiue, Chen (2016). Examining the impacts of organizational culture and top management support of knowledge sharing on the success of software process improvemen. 54, 462–474.

Lenart-Gansiniec (2017). Virtual knowledge sharing in crowdsourcing: measurement dilemmas. *Journal of Entrepreneurship, Management and Innovation*, 13(3), 95-124.

Lent (1996). Career development from a social cognitive perspective. in d. brown, l. brooks, & associates (eds.), Career choice and development (pp. 373-421). SanFrancisco: Jossey-Bass.

Liang (2016). Influences of Organizational Culture on Knowledge Sharing in an Online Virtual Community : Interactive Effects of ... (October). https://doi.org/10.4018/JOEUC.2016100102

Liang (2008). Can Social Exchange Theory Explain Individual Knowledge-Sharing Behavior ? A Meta-Analysis. *International Conference on Information Systems*.

Liao (2008). Knowledge-sharing in R&D departments: A social power and social exchange theory perspective. *The International Journal of Human Resource Management*, *19*(10), 1881–1895.

Liao, Chang, Cheng & Kuo (2004). Employee relationship and knowledge sharing: A case study of a Taiwanese finance and securities firm. *Knowledge Management Research & Practice*, *2*(1), 24–34.

Lietz (2010). Research into questionnaire design. *International Journal of Market Research*, *52*(2), 249–272.

Lin (2007a). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. *Journal of Information Science*, *33*(2), 135–149.

Lin (2007b). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower*, *28*(3/4), 315–332.

Lin & Lin (2007). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. *Journal of Information Science*, *2*(February), 135–149. https://doi.org/10.1177/0165551506068174

Lin (2014). The Relationships between Transformational Leadership, Knowledge Sharing, Trust and Organizational Citizenship Behavior. *International Journal of Innovation, Management and Technology*, *5*(3), 3–6. https://doi.org/10.7763/IJIMT.2014.V5.508

Lin, Lai & Yang (2016). Factors influencing physicians' knowledge sharing on web medical forums. *Health Informatics Journal*, *22*(3), 594–607.

Lo (2015). Article information : Mechanisms to Motivate Knowledge Sharing : Integrating the Reward Systems and Social Network Perspectives. *Journal of Knowledge Management*, *19*(2), 212–235.

Lu, Leung & Koch (2006a). Managerial Knowledge Sharing : The Role of Individual , Interpersonal , and Organizational Factors.

Lu, Leung & Koch (2006b). Managerial knowledge sharing: The role of individual, interpersonal, and organizational factors. *Management and Organization Review*, *2*(1), 15–41.

Ma & Agarwal (2007). Through a glass darkly: Information technology design, identity verification, and knowledge contribution in online communities. *Information Systems Research*, *18*(1), 42–67.

Ma, Huang, Wu, Dong & Qi (2014). What matters for knowledge sharing in collectivistic cultures ? Empirical evidence from China. *JOURNAL OF KNOWLEDGE MANAGEMENT*, *18*(5), 1004–1019. https://doi.org/10.1108/JKM-06-2014-0252

Mafabi, Nasiima, Muhimbise, Kaekende, & Nakiyonga (2017). The Mediation Role of Intention in Knowledge Sharing Behavior. *Journal of Information and Knowledge Management Systems*, *47*(2), 172–193. https://doi.org/10.1108/VJIKMS-02-2016-0008

Malhotra & Birks (2007). Marketing Research: An Applied Approach, 3rd European ed.(Harlow: FT Prentice Hall, Financial Times).

Marett & Joshi (2009). The decision to share information and rumors: Examining the role of motivation in an online discussion forum. *Communications of the Association for Information Systems*, *24*(1), 4.

Masa'deh & Altamony (2016). Critical Success Factors (CSF) of Health Care IS and Firm Performance at Jordanian Health Sector, *Proceeding of the 14th IBIMA conference on Innovation and Knowledge Management in Business,* Istanbul, Turkey.

Mather & Cummings (2017). Modelling Digital Knowledge Transfer: Nurse Supervisors Transforming Learning at Point of Care to Advance Nursing Practice. *Informatics*, *4*(2), 12. https://doi.org/10.3390/informatics4020012

Mc Grane (2016). Knowledge Sharing in Multicultural Organizations. Doctoral thesis, Walden University.

Mein, Gao & Agarwal (2016). The creation of social value: Can an online health community reduce rural–urban health disparities? *Mis Quarterly*, *40*(1).

Memon, Nor & Salleh (2016). Personality Traits Influencing Knowledge Sharing in Student–Supervisor Relationship: A Structural Equation Modelling Analysis. *Journal of Information & Knowledge Management*, *15*(2), 1650015. https://doi.org/10.1142/S0219649216500155

Ministry of Health in Jordan. (2018). Ministry of Health in Jordan.

Moghavvemi, Sharabati, Paramanathan & Rahin (2017). The impact of perceived enjoyment, perceived reciprocal benefits and knowledge power on students' knowledge sharing through Facebook. *The International Journal of Management Education*, *15*(1), 1–12.

Mohammadyari & Singh (2014). Understanding the effect of e-learning on individual performance: The role of digital literacy. *Computers & Education*, 82, 11-25.

Molm (2003). Power, trust, and fairness: Comparisons of negotiated and reciprocal exchange. *Advances in group processes*: Power and status, 20, 31-65.

Monaco, & Neville (2007). *Method of delivering coupons using customer data*. United States: Google Patents.

Mooradian, Renzl, & Matzler (2006). Who trusts? Personality, trust and knowledge sharing. *Management Learning*, *37*(4), 523–540.

Mura, Mura, Lettieri, Lettieri, Radaelli, Radaelli, Spiller (2016). Behavioural operations in healthcare: a knowledge sharing perspective. *International Journal of Operations & Production Management*, *36*(10), 1222–1246.

Nicolas (2004). Knowledge management impacts on decision making process. *Journal of Knowledge Management*, *8*(1), 20–31.

Nonaka (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, *5*(1), 14–37.

Nonaka, & Takeuchi (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation. Oxford university press.

Nor, and Kmnok (2011). Individual Factors and Knowledge Sharing. *American Journal of Economics and Business Administration*, *3*(1), 66–72.

Nunnally & Bernstein (1994). *Psychometric Theory (McGraw-Hill Series in Psychology)* (Vol. 3). McGraw-Hill New York.

Ologbo & Knight (2015). Knowledge sharing in a multi-nationality workforce: Examining the factors that influence knowledge sharing among employees of diverse nationalities. 34(3), 149=165. https://doi.org/10.3233/HSM-150844

Onwuegbuzie & Johnson (2004). Mixed method and mixed model research. *Educational Research: Quantitative, Qualitative, and Mixed Approaches*, 408–431.

Othman, Skaik (2014). Determinants of Academics' Knowledge Sharing Behavior in United Arab Emirates Universities. *Journal of Education and Vocational Research*, *5*(1), 1–12.

Ozlati (2012). Motivation, Trust, Leadership, and Technology: Predictors of Knowledge Sharing Behavior in the Workplace (Faculty of Claremont Graduate University). https://doi.org/10.5642/cguetd/56

Pagliari, Detmer & Singleton (2007). Potential of electronic personal health records. *BMJ: British Medical Journal*, *335*(7615), 330.

Pallant (2007). SPSS survival manual (3rd ed.). New York: McGraw Hill.

Yeung (2014). SPSS survival manual. A step by step guide to data analysis using IBM SPSS [Book Review]. *Aotearoa New Zealand Social Work*, 26(4), 92.

Park, Leung, Konana, (2014). An investigation of information sharing and seeking behaviors in online investment communities. *Computers in Human Behavior*, *31*, 1–12.

Park & Lee (2014). Knowledge sharing in information systems development projects: Explicating the role of dependence and trust. *JPMA*, *32*(1), 153–165. https://doi.org/10.1016/j.ijproman.2013.02.004

Phang, Kankanhalli, Sabherwal (2009). Usability and sociability in online communities: A comparative study of knowledge seeking and contribution. *Journal of the Association for Information Systems*, *10*(10), 721.

Pi, Chou & Liao (2013). A study of Facebook Groups members' knowledge sharing. *Computers in Human Behavior*, *29*(5), 1971–1979.

Podsakoff, MacKenzie, Lee & Podsakoff (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879.

Preacher, Rucker & Hayes (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*(1), 185–227.

Quintane, Mitch Casselman, Sebastian Reiche & Nylund (2011). Innovation as a knowledge-based outcome. *Journal of Knowledge Management*, *15*(6), 928–947.

Radaelli, Lettieri, Mura & Spiller (2014). Knowledge Sharing and Innovative Work Behaviour in Healthcare : A Micro-Level Investigation of Direct and Indirect Effects. *Creativity and Innovation Management*, *23*(4), 400–414.

Rai, Kumar, Kwon, Mathur, Varadan & Agarwal (2012). Smart healthcare textile sensor system for unhindered-pervasive health monitoring. *Nanosensors, Biosensors, and Info-Tech Sensors and Systems 2012*, *8344*, 83440E. International Society for Optics and Photonics.

Ramsaran-Fowdar (2005). Identifying health care quality attributes. *Journal of Health and Human Services Administration*, 428–443.

Reinholt, Pedersen & Foss (2011). Why a central network position isn't enough: The role of motivation and ability for knowledge sharing in employee networks. *Academy of Management Journal*, *54*(6), 1277–1297.

Renzl (2008). Trust in management and knowledge sharing: The mediating effects of fear and knowledge documentation. *Omega*, *36*(2), 206–220.

Ringle, Wende & Will (2010). Finite mixture partial least squares analysis: Methodology and numerical examples. I*n Handbook of partial least squares*, 195-218. Springer, Berlin, Heidelberg.

Ritala, Olander, Michailova & Husted (2015). Knowledge sharing, knowledge leaking and relative innovation performance: An empirical study. *Technovation*, *35*, 22–31.

Roba, Jimma & Diriba (2016). Individual , Organizational and Technological Factors Affect Knowledge Sharing Practices in Assosa Hospital, Ethiopia. *EUROPEAN ACADEMIC RESEARCH* (5), 2286–4822.

Roger Fullwood (2016). An investigation of factors affecting knowledge sharing amongst UK academics Introduction. *Journal of Knowledge Management*, 21(5), 1254-1271.

Rutten, Harry, Rutten, Blaas-franken & Martin (2016). The impact of (low) trust on knowledge sharing. *Journal of Knowledge Management*, *20*(2), 199–214. https://doi.org/10.1108/JKM-10-2015-0391

Safa & Von Solms (2016). An information security knowledge sharing model in organizations. *Computers in Human Behavior*, *57*, 442–451.

Abdallah & Saleh (2017). The effect of trust with suppliers on hospital supply chain performance. *Benchmarking: An International Journal.*

Sarstedt (2010). Structural Modeling of Heterogeneous Data with Partial Least Squares Structural Modeling of Heterogeneous Data With Partial Least Squares. 6435(January). https://doi.org/10.1108/S1548-6435(2010)0000007011

Sarstedt, Ringle, Smith, Reams & Hair (2014). Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers. *Journal of Family Business Strategy*, *5*(1), 105–115.

Saunders, Lewis, & Thornhill, A. (2009). Understanding research philosophies and approaches. *Research Methods for Business Students*, *4*, 106–135.

Schoorman, Mayer & Davis (2007). An integrative model of organizational trust: Past, present, and future. *Academy of Management Review*, *32*(2), 344–354.

Schunk, Pintrich & Meece (2008). *Motivation in education.* (3rd edition). New Jersey: Upper Saddle River.

Sekaran & Bougie (2010). Research Method for Business, A Skill Building Approach. Singapore: John Wiley & Sons Inc.

Sekaran & Bougie (2016). Research methods for business: A skill building approach. Singapore: John Wiley & Sons.

Serenko & Bontis (2016). Negotiate, reciprocate, or cooperate? The impact of exchange modes on inter-employee knowledge sharing. *Journal of Knowledge Management*, *20*(4), 687–712.

Shaari, Bakri & Rahman (2015). Antecedents of Knowledge Sharing Behavior among Nurses : Towards Research Agenda. *Procedia - Social and Behavioral Sciences*, *171*, 635–641. https://doi.org/10.1016/j.sbspro.2015.01.171

Sharratt& Usoro (2003). Understanding knowledge-sharing in online communities of practice. *Electronic Journal on Knowledge Management*, *1*(2), 187–196.

Siemsen, Roth, & Balasubramanian (2008). How motivation, opportunity, and ability drive knowledge sharing: The constraining-factor model. *Journal of Operations Management*, *26*(3), 426–445.

Sitharthan, Hough, Sitharthan & Kavanagh (2001). The alcohol helplessness scale and its prediction of depression among problem drinkers. *Journal of Clinical Psychology*, *57*(12), 1445–1457.

Smith, Collins & Clark (2005). Existing knowledge, knowledge creation capability, and the rate of new product introduction in high-technology firms. *Academy of Management Journal*, *48*(2), 346–357.

Song, Zhang, Xu & Huang (2010). Brand extension of online technology products: Evidence from search engine to virtual communities and online news. *Decision Support Systems*, *49*(1), 91–99.

Spender, (1996). Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, *17*(S2), 45–62.

Spiller (2016). Behavioural operations in healthcare: a knowledge sharing perspective Matteo. 36(10), 1222–1246.

Spreitzer (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, *38*(5), 1442–1465.

Srivastava, Shenoy & Sharma (1989). Quantitative techniques for managerial decisions, New Age International (P) Ltd., New Delhi, India.

Strong, Davenport & Prusak (2008). Organizational governance of knowledge and learning. *Knowledge and Process Management*, *15*(2), 150–157.

Sultan & Yin Wong (2013). Antecedents and consequences of service quality in a higher education context: a qualitative research approach. *Quality Assurance in Education*, *21*(1), 70–95.

Sun, Rau & Ma (2014). Understanding lurkers in online communities: A literature review. *Computers in Human Behavior*, *38*, 110–117.

Supar (2012). Technological factors affecting knowledge sharing among academic staff in selected Malaysian higher educational institutions and the effect on performance. *Journal of Education and Vocational Research, 3*(7), 234–241.

Szulanski (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, *17*(S2), 27–43.

Tabachnick & Fidell (2001). *Computer-assisted research design and analysis* (Vol. 748). Allyn and Bacon Boston.

Tabachnick, Fidell & Ullman. (2007). *Using multivariate statistics* (Vol. 5). Boston, MA: Pearson.

Tanis, Hartmann & te Poel (2016). Online health anxiety and consultation satisfaction: A quantitative exploratory study on their relations. *Patient Education and Counseling*, *99*(7), 1227–1232.

Todorova & Mills (2014). The Impact of Rewards on Knowledge Sharing. *International Conference on Information Resources Management*. *IRM* (p. 27).

Torres-Reyna (2010). *Getting started in factor analysis (using Stata 10)*. Princeton University: New Jersey.

Tsai & Cheng (2010). Programmer perceptions of knowledge-sharing behavior under social cognitive theory. *Expert Systems with Applications*, *37*(12), 8479–8485.

Tuan (2016). Knowledge Sharing in Public Organizations: The Roles of Servant Leadership and Organizational Citizenship Behavior. *International Journal of Public Administration*, *40*(4), 361–373. https://doi.org/10.1080/01900692.2015.1113550

Kokanuch, Anchalee & Khawanruedee Tuntrabundit (2017). Knowledge sharing capability in healthcare organizations. *Journal of Asia Business Studies* 11: 2, 135- 151.

Valaitis, Akhtar-Danesh, Brooks, Binks & Semogas (2011). Online communities of practice as a communication resource for community health nurses working with homeless persons. *Journal of Advanced Nursing*, *67*(6), 1273–1284.

Van den Hooff & Huysman, (2009). Managing knowledge sharing: Emergent and engineering approaches. *Information & Management*, *46*(1), 1–8.

Van Der Eijk, Faber, Aarts, Kremer, Munneke & Bloem (2013). Using online health communities to deliver patient-centered care to people with chronic conditions. *Journal of Medical Internet Research*, *15*(6), 1–10. https://doi.org/10.2196/jmir.2476

Wang, Sha, Hung & Huang (2019). Motivations for entrepreneurship in the tourism and hospitality sector: A social cognitive theory perspective. *International Journal of Hospitality Management*, *78*(November 2018), 78–88. https://doi.org/10.1016/j.ijhm.2018.11.018

Wang, Sheng & Noe (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, *20*(2), 115–131.

Wang & Hou (2015). Motivations of employees' knowledge sharing behaviors: A self-determination perspective. *Information and Organization*, *25*(1), 1–26.

Ware Jr, Snyder, Wright & Davies (1983). Defining and measuring patient satisfaction with medical care. *Evaluation and Program Planning*, *6*(3–4), 247–263.

Wasko & Faraj (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly*, 35–57.

Wasko & Faraj (2000). "It is what one does": why people participate and help others in electronic communities of practice. *The Journal of Strategic Information Systems*, *9*(2–3), 155–173.

Werts, Linn & Jöreskog (1974). Intraclass reliability estimates: Testing structural assumptions. *Educational and Psychological Measurement*, *34*(1), 25–33.

Wood & Welch (2010). Are 'qualitative'and 'quantitative'useful terms for describing research? *Methodological Innovations Online*, *5*(1), 56–71.

Wu, Chuang & Hsu (2013). Information sharing and collaborative behaviors in enabling supply chain performance : A social exchange perspective. *Intern. Journal of Production Economics*, *148*, 122–132. https://doi.org/10.1016/j.ijpe.2013.09.016

Wu & Lee (2017). Empowering group leaders encourages knowledge sharing: Integrating the social exchange theory and positive organizational behavior perspective. *Journal of Knowledge Management.*

Xu, Jones & Shao (2009). Volunteers' involvement in online community based software development. *Information & Management*, *46*(3), 151–158.

Yan, Wang, Chen & Zhang (2016a). Knowledge sharing in online health communities: A social exchange theory perspective. *Information and Management*, *53*(5), 643–653. https://doi.org/10.1016/j.im.2016.02.001

Yan, Wang, Chen & Zhang (2016b). Knowledge Sharing in Online Health Communities: A Social Exchange Theory Perspective. *Information & Management*, *53*(5), 643–653. https://doi.org/10.1016/j.im.2016.02.001

Yen (2009). An empirical analysis of relationship commitment and trust in virtual programmer community. *International Journal of Computers*, *3*(1), 171–180.

Young, & Tseng (2008). Interplay between physical and virtual settings for online interpersonal trust formation in knowledge-sharing practice. *Cyberpsychology & Behavior*, *11*(1), 55–64.

Yun (2016). Abusive Supervision, Knowledge Sharing, and Individual Factors: A Conservation-of-Resources Perspective. *Journal of Managerial Psychology*, *31*(6).

Zafer (2017). Knowledge Sharing in an Emerging Industry Cluster: A Saudi Arabian Case Study (Doctoral dissertation, Curtin University). Curtin University.

Zboralski (2009). Antecedents of knowledge sharing in communities of practice. *Journal of Knowledge Management*, *13*(3), 90–101.

Zhang & (2010). Influential individual factors of knowledge sharing behavior in Hong Kong construction teams. *W102-Special Track 18th CIB World Building Congress May 2010 Salford, United Kingdom*, 179.

Zhang, Ordóñez, Pablos & Xu (2014). Culture effects on the knowledge sharing in multi-national virtual classes: A mixed method. 31, 491–498.

Zhang, Xing, Liu, Chen, Zhang, Liu& Chen (2017). Social capital, motivations, and knowledge sharing intention in health Q&A communities. *Management Decision*, *55*(7), 1536–1557.

Zhang, Xing, Liu, Deng & Chen (2017a). Knowledge sharing motivations in online health communities: A comparative study of health professionals and normal users. *Computers in Human Behavior*, *75*, 797–810.

Zhang, Xing, Liu, Deng & Chen (2017b). Knowledge sharing motivations in online health communities: A comparative study of health professionals and normal

users. *Computers in Human Behavior*, *75*, 797–810. https://doi.org/10.1016/j.chb.2017.06.028

Zhao, Seibert & Hills (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, *90*(6), 1265.

Zhao & Widdows (2013). Building trusting relationships in online health communities. *Cyberpsychology, Behavior, and Social Networking*, *16*(9), 650–657.

Zhao, Tang, Liu, & Liu (2016). Social capital, motivations, and mobile coupon sharing. *Industrial Management & Data Systems*, *116*(1), 188–206.

Zhou & Li (2012). How knowledge affects radical innovation: Knowledge base, market knowledge acquisition, and internal knowledge sharing. *Strategic Management Journal*, *33*(9), 1090–1102.

Zikmund, Babin, Carr & Griffin (2013). *Business research methods*. The Dryden Press: Fort Worth, TX.

APPENDIX A

QUESTIONNAIRE VALIDATION FORM

Research Title:

The Moderating Roles of Knowledge Self-Efficacy Toward Knowledge Sharing Behaviour Among Nursing Supervisors in Online Healthcare Communities.

Dear Prof./Asst. Prof./Dr.

My name is Salah Jamel Shehab, I am undertaking the above-named research as my thesis undertaking. Currently, I have adapted several instruments to measure the constructs of interest, which are highlighted in the proposed framework shown on the next page. The next stage is to validate the items. The main objective is to ensure that these items match with their respective operational definitions. I would be grateful if you could spend some time to read the items and assess their content validity.

Perhaps, there are certain constructs with adapted instruments which need to be simplified due to (1) lengthy wordings (2) too many items, and (3) ambiguity. The attribute of each set of survey instrument is properly indicated (whether it is originally adapted or a modified version). If the instruments are modified, the original instruments can be referred at the appendix section. Please respond to the exercise indicating whether each item is a perfect match, moderate match or poor match. If the item is considered as a moderate match, please provide the suitable wordings in the comments column.

The research unit of analysis is supervisors in private hospitals in Jordan. Should you need any clarification, I can be reached at +60177601530 or through email (s.j.a.84@hotmail.com) I thank you in advance for your time and expertise.

Researcher:	**Supervisor Committee:**	**Co-Supervisor:**
Salah Jamil Abd Al Fattah Shehab Ph.D. College of Graduate Studies Universiti Tenaga Nasional s.j.a.84@hotmail.com	Dr.Rabiah Eladwiah Abdul Rahim. College of Graduate Studies Universiti Tenaga Nasional rabiah@uniten.edu.my	Prof. Dr.Salina Bte. Daud College of Graduate Studies Universiti Tenaga Nasional salina@uniten.edu.my

Construct (Dimension), Proponents & Scales	Operational Definition & Modifications (if any)	Instruction and Questionnaire Items	Comments	Your Assessment		
				Perfect Match (maintain item as it is)	**Moderate Match** (maintain item but needs some refining)	**Poor Match** (remove item)
Trust Scales used: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree The scale items are **adapted** from the (Jarvenpaa et al., 1999). (Hassandoust et al., 2011)	**Trust**: the belief in the good intent, competence, and reliability of employees with respect to contributing and reusing knowledge (Mishra 1996; Putnam 1993).	**Instruction:** Please indicate your response to the following statements. Please tick the most appropriate assessment based on the scale below.				
		1. We were usually considerate of one another's feelings on online healthcare communities.				
		2.The people in online healthcare communities were friendly.				
		3.I could rely on those with whom I worked in online healthcare communities.				
		4. Overall, the people in online health communities were very trustworthy.				

Construct (Dimension), Proponents & Scales	Operational Definition & Modifications (if any)	Instruction and Questionnaire Items	Comments	Your Assessment		
				Perfect Match (maintain item as it is)	**Moderate Match** (maintain item but needs some refining)	**Poor Match** (remove item)
Reciprocity Scales used: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree The scale items are **adapted** from the (Bock et al., 2005) (Zhang et al., 2017a)	**Reciprocity** Belief that current sharing behaviour will cause future requests for knowledge to be easily satisfied by others (Davenport et al., 1998)	**Instruction:** Please indicate your response to the following statements. Please tick the most appropriate assessment based on the scale below.				
		5.When I share knowledge in online healthcare communities, I believe that my questions will be answered in the future.				
		6.I believe that other members whom I interact with would help me whenever I am in need in online healthcare communities.				
		7.When I share my knowledge in online healthcare communities, I expect the other members to respond whenever I am in need.				

Construct (Dimension), Proponents & Scales	Operational Definition & Modifications (if any)	Instruction and Questionnaire Items	Comments	Your Assessment		
				Perfect Match (maintain item as it is)	**Moderate Match** (maintain item but needs some refining)	**Poor Match** (remove item)
Reputation Scales used: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree The scale items are **adapted** from the (Wasko & Faraj, 2005) (Zhang et al., 2017a)	**Reputation** Perception of an improvement in reputation and image due to sharing knowledge in the online community (Kankanhalli et al., 2005).	**Instruction:** Please indicate your response to the following statements. Please tick the most appropriate assessment based on the scale below.				
		8. I earn respect from others by participating in the online healthcare communities.				
		9. I feel that participation improves my status in the online healthcare communities.				
		10..I am participating in the online healthcare communities can enhance my reputation in my professional field.				
		11. I can earn some feedback or rewards through participation that represent my reputation and status in the online healthcare communities.				

Construct (Dimension), Proponents & Scales	Operational Definition & Modifications (if any)	Instruction and Questionnaire Items	Comments	Your Assessment		
				Perfect Match (maintain item as it is)	**Moderate Match** (maintain item but needs some refining)	**Poor Match** (remove item)
Ability to share Scales used: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree The scale items are **adapted** from the (Armitage et al., 1999) (Radaelli et al., 2014)	**Ability to share** The ability of individuals to share knowledge with each other, this trait refers to capabilities of conceiving and sharing meaning in different situations (Mohammadyari et al., 2014).	**Instruction:** Please indicate your response to the following statements. Please tick the most appropriate assessment based on the scale below.				
		12. I am fully capable of sharing my knowledge with others in online healthcare communities.				
		13.If it depended only on me, I would exhaustively share my knowledge in online healthcare communities.				
		14. I am fully capable of articulating my knowledge in written or spoken form in online healthcare communities.				
		15.I believe I am fully capable of sharing my knowledge at any time in online healthcare communities.				

Construct (Dimension), Proponents & Scales	Operational Definition & Modifications (if any)	Instruction and Questionnaire Items	Comments	Your Assessment		
				Perfect Match (maintain item as it is)	**Moderate Match** (maintain item but needs some refining)	**Poor Match** (remove item)
Knowledge self-efficacy Scales used: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree The scale items are **adapted** from the (Bock & Kim, 2002) (Lu et al., 2006)	**Knowledge self-efficacy** Self-efficacy refers to the degree of confidence in one's ability to provide knowledge that is valuable to others (Kankanhalli et al., 2005)	**Instruction:** Please indicate your response to the following statements. Please tick the most appropriate assessment based on the scale below.				
		16.The knowledge I share with my colleagues would be very useful to them in online healthcare communities.				
		17.My personal expertise will display its value if shared within the online healthcare communities.				
		18. My limited knowledge, even if shared, will generate little effect within the online healthcare communities. (R)				
		19.I am confident that my knowledge sharing would improve work processes in the online healthcare communities.				
		20.I am confident that my knowledge sharing would increase the productivity in the online healthcare communities.				

Construct (Dimension), Proponents & Scales	Operational Definition & Modifications (if any)	Instruction and Questionnaire Items	Comments	Your Assessment		
				Perfect Match (maintain item as it is)	**Moderate Match** (maintain item but needs some refining)	**Poor Match** (remove item)
Knowledge sharing behaviour Scales used: (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree (6) Don't know/ Not Applicable The scale items are **adapted** from the (Lu et al., 2006a) (Bock & Kim, 2001) (Lu et al., 2006a)	**Knowledge sharing behaviour** the process of involving knowledge exchange between individuals and groups of individuals (Davenport & Prusak ,1998).	**Instruction:** Please indicate your response to the following statements. Please tick the most appropriate assessment based on the scale below.				
		21. In daily work, I take the initiative to share my work-related knowledge to my colleagues in online healthcare communities.				
		22. I keep my work experience and never share it out with others easily in online healthcare communities. (R)				
		23.After learning new knowledge useful to work, I promote it to let more people learn it in online healthcare communities				
		24.I actively use online healthcare community's sources available to share my knowledge.				
		25.So long as the other colleagues need it, I always tell whatever I know without any hoarding in online healthcare communities.				

APPENDIX B

Demography for experts

#	Academic position	Current position	University	Field of experience	Meeting time/date
1	Assoc. Prof. Dr. Nurhizam Safei	Deputy Dean of Industry & Community Partnership and Income generation	UKM	Healthcare management Hospital information systems Information science	April 30, 2018 Face-to-face
2	Asst. Prof. Dr. Mustafa Jaber	Faculty of Civil and Environmental Engineering.	UTHM	e-Health e-Government Telemedicine Modelling and adoption	May 7, 2018 Face-to-face
3	Dr. Ahmed Fahad	Deputy dean of Scientific affairs	Imam Sadiq university college, Iraq	Information Science Service sciences	E-mail
4	Asst. Prof. Dr. Mu'taman Jarrar	Vice Deanship for Quality and Development	Imam Abdulrahman Bin Faecal University, Saudi Arabia	Healthcare management and leadership. Organizational behaviour Strategic Planning Nursing	E-mail

APPENDIX C

Questionnaire for Nursing Supervisors

Dear Participant:

We cordially invite you to participate in a research entitled "the moderating roles of knowledge self-efficacy toward knowledge sharing behaviour among nursing supervisors in online healthcare communities." This survey is being conducted as a part of the Ph.D. program in Business Management at University Tenaga Nasional (UNITEN), Malaysia.The aim of this research is to examine the relationship between Individual Factors and Knowledge Sharing Behaviour in Online Healthcare Communities in Amman, Jordan. Also, this research aims to identify the moderating role of Knowledge Sharing Self-Efficacy in the relationship between the Individual Factors and Knowledge Sharing Behaviour. We are interested in your experiences in the private hospital in AMMAN. So, I have enclosed a questionnaire, which will require approximately 15 minutes responding to series of statements and questions. Please read the questionnaire and respond to every item as instructed in every section. Feel free to contact us if you have any questions about the research.

As a part of the university research policy, there are no commercial benefits attached to this research and the collected data from this study will be used for research purposes only. Additionally, your response will extremely remain confidential and no identifying information will be attached to your answers.

Your participation is highly appreciated

Researcher:	**Supervisor Committee:**	**Co-Supervisor:**
Salah Jamil Abd Al Fattah Shehab Ph.D. College of Graduate Studies Universiti Tenaga Nasional s.j.a.84@hotmail.com	Dr.Rabiah Eladwiah Abdul Rahim. College of Graduate Studies Universiti Tenaga Nasional rabiah@uniten.edu.my	Prof. Dr.Salina Bte. Daud College of Graduate Studies Universiti Tenaga Nasional salina@uniten.edu.my

DEFINITIONS OF THE RESEARCH VARIABLES

Knowledge sharing behaviour: The process of involving knowledge exchange between individuals and groups of individuals.

Trust: The belief in the good intent, competence, and reliability of employees with respect to contributing and reusing knowledge.

Reciprocity: Belief that current sharing behaviour will cause future requests for knowledge to be easily satisfied by others.

Ability to share: The ability of individuals to share knowledge with each other, this trait refers to capabilities of conceiving and sharing meaning in different situations.

Reputation: Perception of an improvement in reputation and image due to sharing knowledge in the online community**.**

Knowledge Self –efficacy: The degree of confidence in one's ability to provide knowledge that is valuable to others.

Online health communities: Social media networks such as Facebook, Twitter and LinkedIn.

DIRECTIONS:

The online community is a crucial platform to sharing knowledge in organizations. The online virtual community is a gathering of individuals who communicate with each other via social media networks (Facebook, Twitter and LinkedIn) and can discuss post, give advice, reply and collaborate to follow common interest or goal. By engaging in online communities, the individuals can participate in knowledge sharing with no time and space limitations. For a successful virtual knowledge community, it must be managed by

members who are good in practicing online knowledge sharing. Online virtual communities could develop an individual's knowledge sharing and trust. Several previous studies have asserted that online virtual communities may serve the necessities of users for information and knowledge sharing as well as also might be regarded as an inventive tool for organizational knowledge sharing. Online communities could support information and knowledge sharing as well as are critical for organizations.

Although online healthcare communities are a beneficial platform in order to share general health knowledge, like, drug side effects, hospital information, some questions are still needed to answer as what factors identify whether community participants' will share their particular knowledge, such as their own personal medical information. It has been found that there is a lack in sharing health knowledge via the online communities in Jordanian health environments. As such, this study aims to identify the main antecedents that may hinder the healthcare professionals to share their knowledge with their colleagues in the same hospital or even with other hospitals. This research proposed a set of factors that will be investigated to verify its suitability in the context of usage.

In section, one please put a tick (√) in the box next to the answer of your choice. In sections2,3, and 4 please respond to each item by circling the most appropriate number based on the 5-point scale where 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree, 5= Strongly Agree.

Your participation is voluntary, and you can withdraw your survey anytime.

Thank you very much

SECTION A: Demographic Background

1. What is your gender?

Male ☐
Female ☐

2. What is your age group?

25-30 ☐
31-35 ☐
36-40 ☐
>40 ☐

3. What is your level of education?

Bachelor ☐
High diploma ☐
Master ☐
PhD ☐

4. How long do you use the Internet every day?

Less than one hour ☐
1-3 hours ☐
4-6 Hours ☐
> 6 hours ☐

5. How many years of experience you have in the health sector?

Less than one year ☐
1-3 years ☐
More than 3 years ☐

Section B: Individual factors

Trust:

No.	Items	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	We were usually considerate of one another's feelings on online healthcare communities.	1	2	3	4	5
2	The people in online healthcare communities were friendly.	1	2	3	4	5
3	I could rely on those with whom I worked in online healthcare communities.	1	2	3	4	5
4	Overall, the people in online healthcare communities were trustworthy.	1	2	3	4	5

Reciprocity:

No.	Items	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	When I share knowledge in online healthcare communities, I believe that my questions will be answered in the future.	1	2	3	4	5
2	I believe that other members whom I interact with would help me whenever I am in need in online healthcare communities.	1	2	3	4	5
3	When I share my knowledge in online healthcare communities, I expect the other members to respond whenever I am in need.	1	2	3	4	5

Reputation:

No.	Items Reputation	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	I earn respect from others by participating in the online healthcare communities.	1	2	3	4	5
2	I feel that participation improves my status in the online healthcare communities.	1	2	3	4	5
3	My participating in the online healthcare communities can enhance my reputation in my professional field.	1	2	3	4	5
4	I can earn some feedback or rewards through participation that represent my reputation and status in the online healthcare communities.	1	2	3	4	5

Ability to Share:

No.	Items Anility to share	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	I am fully capable of sharing my knowledge with others in online healthcare communities.	1	2	3	4	5
2	If it depended only on me, I would exhaustively share my knowledge in online healthcare communities.	1	2	3	4	5
3	I am fully capable of articulating my knowledge in written or spoken form in online healthcare communities.	1	2	3	4	5
4	I believe I am fully capable of sharing my knowledge at any time in online healthcare communities.	1	2	3	4	5

Section C: Moderation factor

Knowledge Self-efficacy:

No.	Items	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	The knowledge I share with my colleagues would be very useful to them in online healthcare communities.	1	2	3	4	5
2	My personal expertise will display its value if shared within the online healthcare communities.	1	2	3	4	5
3	My limited knowledge, even if shared, will generate little effect within the online healthcare communities. (R)	1	2	3	4	5
4	I am confident that my knowledge sharing would improve work processes in the online healthcare communities.	1	2	3	4	5
5	I am confident that my knowledge sharing would increase the productivity in the online healthcare communities.	1	2	3	4	5

Section D:

Knowledge sharing behaviour

No.	Items	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	In daily work, I take the initiative to share my work-related knowledge to my colleagues in online healthcare communities.	1	2	3	4	5
2	I keep my work experience and never share it out with others easily in online healthcare communities. (R)	1	2	3	4	5
3	After learning new knowledge useful to work, I promote it to let more people learn it in online healthcare communities.	1	2	3	4	5
4	I actively use online healthcare community's sources available to share my knowledge.	1	2	3	4	5
5	So long as the other colleagues need it, I always tell whatever I know without any hoarding in online healthcare communities.	1	2	3	4	5

Your suggestion: ----------

THANK YOU FOR YOU COOPERATION

Questionnaire for Nursing Supervisor (Arabic language)

عزيزي المشارك

يسرنا دعوتكم للمشاركة بهذه الدراسة المعنونة بـ " دور إدارة المعرفة الذاتية الفعالة تجاه المعرفة التي تشترك في سلوك المشرفين على التمريض في مجتمعات الرعاية الصحية عبر الإنترنت . " ونحيطكم علما بإن هذه الدراسة الميدانية جزء من متطلبات الحصول على درجة الدكتوراه في إدارة الأعمال من جامعة تيناجا الوطنية) يونيتن (في ماليزيا .)

يهدف هذا البحث إلى دراسة العلاقة بين العوامل الفردية وسلوكيات مشاركة المعرفة في مجتمعات الرعاية الصحية عبر الإنترنت في عمان ، الأردن. كما يهدف هذا البحث إلى تحديد الدور المعتدل لتقاسم المعرفة ذات الكفاءة الذاتية في العلاقة بين العوامل الفردية وسلوك تقاسم المعرفة.

ونظرا لخبرتكم في القطاع الصحي الاردني ، فإننا نتوجه إليكم باستمارة البحث المرفقة والتي لن تأخذ منكم سوى 15 دقيقة للإجابة على فقراتها وأسئلتها المتسلسلة. كما نتمنى من حضرتكم التواصل معنا في حالة رغبتكم بالاستفسار حول البحث .

ونحيطكم علما أنه بالاستناد إلى سياسة الجامعة فإن هذه الدراسة لا تهدف إلى أية أهداف ربحية، إذ أن البيانات التي سيتم جمعها من خلال هذه الدراسة ستستخدم لأهداف البحث العلمي فقط.

كما نؤكد لكم أن إجاباتكم ستحاط بالسرية التامة ولن يتم الربط ما بينها وما بين بياناتكم التعريفية.

مقدرين لكم مشاركتكم الكريمة

وتفضلوا بقبول فائق الاحترام والتقدير

طالب دكتوراه :صلاح شهاب

مشرفه البحث

الدكتورة :رابعه عبد الرحمن

rabiah@umiten.edu.my

هاتف:0796220222

S. J. A. 84@HOTMAIL. COM

القسـم الأول :- الخلفية الديموغرافية

١.ما هو جنسك ؟

ذكر ☐

أنثى ☐

٢.ما هي فئتك العمرية ؟

٢٥-٣٠ ☐

٣١-٣٥ ☐

٣٦-٤٠ ☐

٤٠< ☐

٣.ما هو مستواك التعليمي ؟

بكالوريوس ☐

دبلوم عالي ☐

ماجستير ☐

دكتوراه ☐

٤.كم مدة استخدامك للإنترنت كل يوم ؟

أقل من ساعة واحدة ☐

١-٣ ساعات ☐

٤-٦ ساعات ☐

> ٦ ساعات ☐

٥.كم عدد سنوات الخبرة التي تملكها في قطاع الصحة ؟

أقل من سنة ☐

١-٣ سنوات ☐

القسم الثاني : العوامل الفردية

الثقة:

	البيان	لا اوافق بشده	لا اوافق	محايد	اوافق	اوافق بشده
1	نحن عادة نأخذ بعين الاعتبار مشاعر بعضنا البعض في مجتمعات الرعاية الصحية عبر الانترنت.	1	2	3	4	5
2	جميع الناس في مجتمعات الرعاية الصحية ودودين.	1	2	3	4	5
3	يمكنني الاعتماد على الاشخاص الذين عملت معهم في مجتمعات الرعاية الصحية.	1	2	3	4	5
4	بشكل عام , الاشخاص في المجتمعات الصحية عبر الانترنت جديرين الثقة .	1	2	3	4	5

التبادل :

	البيان	لا اوافق بشده	لا اوافق	محايد	اوافق	اوافق بشده
1	عندما أنشر المعرفة في مجتمعات الرعاية الصحية عبر الانترنت , أنا أؤمن أن جميع أسئلتي ستكون مجابة في المستقبل.	1	2	3	4	5
2	أعتقد أن الاعضاء الاخرين الذين أتواصل معهم سوف يساعدونني عندما أكون في حاجة في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
3	عندما أقوم بنشر معرفتي في مجتمعات الرعاية الصحية عبر الانترنت , أتوقع من الأعضاء الاخرين الاستجابة عندما أكون في حاجة .	1	2	3	4	5

السمعة:

	البيان	لا اوافق بشده	لا اوافق	محايد	اوافق	اوافق بشده
1	أكسب الاحترام من الاخرين عند المشاركة في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
2	أشعر أن المشاركة تعمل على تحسين وضعي في مجتمعات الرعاية الصحية .	1	2	3	4	5
3	مشاركتي في مجتمعات العناية الصحية عبر الانترنت تعزز سمعتي في مجال تخصصي .	1	2	3	4	5
4	أستطيع كسب بعض النتائج والمكافئات من خلال المشاركة التي تمثل سمعتي ومكاني في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5

القدرة على النشر:

	البيان	لا اوافق بشده	لا اوافق	محايد	اوافق	اوافق بشده
1	أنا قادر بشكل تام على مشاركة معرفتي مع الاخرين في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
2	اذا كان الامر معتمد عليَ سوف اشارك معرفتي بشكل كلي في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
3	أنا قادر بشكل تام للتعبير عن معرفتي بصيغة مكتوبة أو منطوقة في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
4	أعتقد أنني قادر بشكل كلي على مشاركة معرفتي في أي وقت في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5

القسم الثالث :- عامل الاعتدال

فعالية مشاركة المعرفة :

	البيان	لا اوافق بشده	لا اوافق	محايد	اوافق	اوافق بشده
1	المعرفة التي أشاركها مع زملائي ستكون مفيدة لهم في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
2	خبرتي الشخصية تثبت قيمتها اذا تمت مشاركتها داخل مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
3	معرفتي المحدودة , حتى لو نشرت , ستحدث تأثير صغير في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
4	أثق أن المشاركة ستحسن طريقة العمل في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
5	أثق أنها ستزيد الانتاجية في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5

القسم الرابع:

سلوك مشاركة المعرفة

	البيان	لا اوافق بشده	لا اوافق	محايد	اوافق	اوافق بشده
1	في العمل اليومي , أقوم بزمام المبادرة لمشاركة معرفتي المعملية مع زملائي في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
2	أحفظ خبرتي العملية ولا أشاركها مع الاخرين بسهولة في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
3	بعد تعلم المعرفة الجديدة المفيدة للعمل , سأروجها لجعل مزيد من الناس يتعلمها في مجتمعات الرعاية الصحية عبر الانترنت .	1	2	3	4	5
4	سأقوم بشكل نشط باستخدام مصادر الرعاية الصحية المتوفرة لمشاركة معرفتي .	1	2	3	4	5
5	طالما الزملاء الاخرين في حاجة لها , سأخبرهم معرفتي دائما دون تردد في مجتمعات الرعاية الصحية عبر الانترنت.	1	2	3	4	5

مقترحات.....

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شاكرين لكم حسن تعاونكم