

# Fear of COVID-19, Social Media and Psychological Well-being of the Malaysian Adolescents during Pandemic towards Endemicity: A Systematic Review

M. Fitriana \*, S. I. Savitri, J. Ahmad, Rizwanah Souket Ali, and Z. K. Latifah

**Abstract**—The use of social media for information transfer during the COVID-19 pandemic attracted the attention of diverse groups of researchers worldwide. The spread of misinformation on social media and other digital platforms has been deemed to be as much of a threat to public health as the virus itself. The increased fear of COVID-19 is among the prolonged impacts of social media misinformation and its influences on individuals' psychological well-being indicate the robust digital information transfer. The current paper aims to analyse the exploratory relationship between COVID-19 fear and the psychological well-being of people through the use of social media during the pandemic and its prolonged condition in the endemic. A systematic review procedure is utilised to enable the multiple phenomena to be investigated during the COVID-19 pandemic, analysing the causal contribution of the different pandemic configurations towards the associated conditions for the outcomes during the endemic. Using reviews of the literature for illustrative comparison method of data synthesis in presenting themes development, the extraction method for inclusion criteria is performed for coding analysis. The significant impacts of the misuse of social media in information transfer and online communication, imply fear of COVID-19 fluctuates the psychological well-being among people.

**Index Terms**—COVID-19 fear, psychological well-being, social media, endemicity

## I. INTRODUCTION

The term social media connotes the means of interaction and communication which require computer-based technology, facilitating exchanged ideas or thoughts among people in virtual networks and communities [1]. Of all the digital interaction and communication, internet-based social media connects people in the technological environment. In Malaysia, 88.7% of the population is internet users indicating an increase of 1.3% from 2018 (Internet Users Survey, 2020). Smartphones remained the most popular means for users to access the Internet (98.7%) as compared to other mobile devices [2]. Online activities among Malaysians have increased especially during the Movement Control Order (MCO) with 98% used for text communication, 93% for

social media, 87% for videos, 81% for voice and communication, 68% for online reading, 65% for music, 64% for financial transaction and online shopping, and 43% for gaming [2]. While the current focus is on the use of social media online, both Whatsapp and Instagram remain the highest means of social media platforms with 98.7% and 88% respectively. Of all the users, the young adults within the age group of 20-34 years old were reported to engage more in social network sites (SNSs) as compared to other groups of age [2]. About 86% of the Malaysian population indicates a large proportion of young adults as active social media users [3].

Wong and colleagues [4], in their study on the COVID-19 pandemic, involved 7 middle-income countries in Asia, including Malaysia and Indonesia, and revealed that there was a significantly different score of COVID-19 pandemic, depression, anxiety and stress among those countries. Results showed that Malaysia was among the 3 countries that scored the highest for anxiety on the Depression Anxiety and Stress Scale (DASS-21). Of all the respondents, 68% experienced excessive worry about COVID-19, 93.9% conversely, expressed confidence in being diagnosed of having COVID-19, and 94.2% were eager to know more about the local outbreaks. In another study, Yasir and colleagues [5] found that social media contributed to significant roles during the pandemic since the time spent at home is focused more on online platforms for education and entertainment purposes. As online usage for both education and entertainment increases, with more information required by the public during the pandemic, social media serves as the platform for the public to receive more information from different agencies.

Hashim and colleagues [6] further investigated the use of social media by people to receive COVID-19 information from the National Security Council (MKN), the Ministry of Health, and local health staff. They found that of all the participants, 85.7% consistently searched for the information, and 21.1% used the SNSs through Whatsapp, Facebook, Twitter, Telegram and Instagram for the information. Of the participants' preferences in using social media for the information, 9.5% preferred the sole use of social media to receive COVID-19 information, 6.8% preferred social media, SMS and television, 7.5% preferred social media, website, SMS, newspaper and television, 6.8% preferred social media and website, 7.5% preferred social media, website, SMS and television, 4.8% preferred the sole use of television, and 3.4% preferred the sole use of the website. It was also highlighted that the participants would verify the news and information that are obtained through social media before sharing the

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Mimi Fitriana and Jasmine Ahmad are International University of Malaya-Wales, Jalan Tun Ismail 54080 Kuala Lumpur, Malaysia.

Setiawati Intan Savitri is with Faculty of Psychology, Mercubuana University Jakarta Jl. Ray, Jakarta 11650, Indonesia.

Rizwanah Souket Ali is with Monash University Malaysia, Jalan Lagoon Selatan, Bandar Sunway, 47500 Subang Jaya, Selangor, Malaysia.

Zahra Khusnul Latifah is with Djuanda University, Bogor, Jagorawi Toll Rd No.1, Ciawi, Bogor Regency, West Java 16720, Indonesia

\*Correspondence: mimifitriana@iumw.edu.my (M.F.)

information [6].

Social media might create damaging effects on people, especially when used in excess or obsessively. Miscommunication and misinterpretation of information are common problems among people in the use of social media. The information in internet-based social media is easily transferred, yet misinterpretation prevents the message to reach the receivers effectively. This leads to increase confusion, panic, anxiety, worry, emotional reaction and many other significant psychological and physical expression among the information receivers, especially during the COVID-19 pandemic [7]. The information on the coronavirus spread was quickly shared among people and the news report on the impacts of the virus was rapidly published on social media and other social network sites [8] creating fear among people.

Fear of COVID-19 is an emotional reaction which is characterized by persistent and excessive worries and tension, paired with physiological symptoms of Generalised Anxiety Disorder during the COVID-19 pandemic [9]. This anxiety-provoking situation is transformed into what is currently known as fear of the COVID-19. The post-traumatic condition increases the rate of other psychological problems during the pandemic and it tremendous increases in the phase of endemicity whereby the fear and other associated stress, anxiety and depression affect the mental health of people across nations [10]. The global movement of transforming the status from pandemic to endemic has put Malaysia and Indonesia, to experience this transition phase. The issues of mental health are reported to increase after these two years of adverse conditions living with the pandemic. This subsequently affects the fear of COVID-19 reoccurring in the phase of endemic and other mental health problems to concurrently increase in this phase [11]. Mental health has a positive relationship with psychological well-being and significantly influences other well-being of individuals [12]. Mental health also affects people's physical health consequences [13,14], especially during the COVID-19 pandemic [15]. The endemic phase, however, brings changes in the perception and way of living among people towards prudent circumstances in which psychological and physical health should be taken seriously, with the fact that the COVID-19 virus is still present [16]. Mental health, which encompasses an individual's psychological well-being, is an important component of the current COVID-19 endemic whereby the degree of stress, anxiety and depression do not accommodate the condition during the pandemic only, it rather assimilates into the current fear of COVID-19 during the endemic. COVID-19 anxiety correlates with individuals' psychological well-being whereby their levels of depression, anxiety, and stress accommodate their mental and physical health conditions [17]. The negative use of social media affects individuals. Its impact on individuals' susceptibility to symptoms of anxiety and depression [19] multiplies the degree of stress and other psychological problems [19]. The positive implication of social media, however, serves as a platform for communication [20].

#### *A. Problem Statement*

The transition phase from pandemic to endemic phase

indicates less significant disruptions of people's daily routines due to the COVID-19 virus. The disease is said to be reduced during the endemic phase, however, the present danger of its impact might lead to an increased level of fear and other development of psychological problems [21]. With the involvement of social media in spreading information on the endemic condition of COVID-19, the public is still living with deep skepticism, doubting the disease's information to release. Although numerous studies have been done to investigate the role of social media on the COVID-19 fear and psychological well-being during the pandemic, little was known about the mediating effects of social media in the relationship between the two variables, both in Malaysia and Indonesia, especially during the transition period in the endemicity. The current article, therefore, aims to explore the relationship between fear of the COVID-19 pandemic and the psychological well-being of Malaysian and Indonesian young adults during the phase of endemicity.

The US Statista in 2021 produced reports on the prevalence of anxiety and depression among young people with 56% suffering from mental health issues. Royal Society for Public Health in the UK surveyed young people 14-24 years old and stated that about 14 factors were investigated including anxiety, depression, loneliness, harassment, opportunity to express oneself etc., due to the impact of social media on their mental health. Nonetheless, the positive implication of social media contributes to many other changes within people and society at large. It not only provides beneficial information to society but also gives accurate information on medical education, and health care, facilitating sharing of information, and other forms of expressions to highlight virtual communication among people around the world [4]. Nonetheless, the current article focuses more on the issues of misinterpretation and miscommunication among young people regarding information transfer about the COVID-19 phenomenon which lead to devastating impacts on their psychological well-being due to developed fear, worry and anxiety in experiencing the COVID-19 condition. The article explores such impacts whether continuously being experienced by people in the phase of endemicity when in use of social media.

Therefore, the specific objectives of the current study to 1) explore if the use of social media during the pandemic and endemic is related to the occurrence of COVID-19 fear among people across ages, 2) to identify whether the use of social media during the pandemic and endemic related to the psychological well-being among people across ages, 3) find out if the occurrence of COVID-19 fear during the pandemic and endemic related to the psychological well-being of people across ages, 4) expose if the use of social media affects the relationship between COVID-19 fear and psychological well-being during the pandemic and endemic among people across ages.

## II. LITERATURE REVIEWS

Numerous researches stated that social media usage could have a tremendous impact on the mental well-being of individuals [20, 22, 23]. Twenge and Campbell [22] found that heavy users of social media, between 48% and 171%

were more likely to be unhappy and had negative psychological well-being as compared to light users of social media. The results of the study also indicated that heavy social media users were more likely to have suicidal thoughts. However, in an eight-year-long longitudinal study done by Coyne and colleagues [23], it was discovered that there was no association between increased social media usage and the development of psychological problems. The transition period of the participants from adolescents to their young adulthood age did not reveal a significant influence on the use of media on their psychological problems. Nonetheless, results revealed that there was a significant correlation between time spent on social media and psychological problems among social media users. Moreover, Pang [20] in his study concluded that social media could influence people positively and their psychological well-being is enhanced when used for social bonding and communication, fostering new relationships and maintaining existing relationships instead of solely used for entertainment [20].

An experimental study conducted by Silva and colleagues [9] indicated that the psychological well-being of the participants was low during the COVID-19 pandemic due to the levels of anxiety and fear of death among people at that particular time. The fear of death significantly predicts the level of anxiety, and that anxiety is a significant mediator of the fear of death and psychological well-being [9]. A further study conducted by Kwong and colleagues [24] which involved two longitudinal population cohorts' studies, revealed that although the depression levels during the pandemic period were similar to the pre-pandemic period for one of the cohort studies' groups, the number of individuals experiencing anxiety increased from 13% during the pre-pandemic period to 24% during the pandemic period. However, the study discovered that in both studies, particular groups, such as younger individuals and the female gender, were more susceptible to anxiety and depression during the pandemic. Furthermore, a global study carried out by Varma and colleagues [25] revealed that out of all participants, 77% of them reported experiencing a minimum of moderate levels of stress during the pandemic, with 59% of them possessing potentially clinical anxiety levels, 73% of the participants reported experiencing substandard sleep quality, and 35% of the participants seemed to have at least a moderate level of depression. Varma and colleagues [25] also carried out an age-specific analysis in which the findings demonstrated that young adults are more prone to the negative psychological impacts of the COVID-19 pandemic. However, it is notable that 18% of the participants had a prior diagnosis before the pandemic, and other than the high levels of stress and anxieties, the level of depression of the participants in this study was at most mild-moderate.

In another research, conducted by Allington and colleagues [26] it was discovered that the usage of social media as a source of COVID-19 information and holding COVID-19 conspiracy beliefs have a strong positive association with each other. The results also supported the authors' hypothesis in some conspiracy beliefs could have a larger impact on the behaviours of individuals as compared to the rest of the conspiracy beliefs. Results across all three studies also suggested that younger individuals were more likely to hold onto these conspiracy beliefs and these

conspiracy beliefs hindered individuals from performing health-protective behaviours. Nonetheless, a cross-sectional study conducted by Marzouki and colleagues [27] found that the act of gaining knowledge, although not actual but perceived, through social media tends to impact an individual's level of threat and anxiety as the information-seeking behaviour itself and tends to gradually decrease the individual's feelings of uncertainty. Moreover, another study carried out by Cauberghe and colleagues [28] found that the participants who were affected by anxiety and loneliness were more likely to make use of social media as a coping mechanism. Although the results of the study suggested that social media usage was not significantly associated with feelings of happiness as feelings of happiness are considered to have a higher association with feelings of loneliness rather than with feelings of anxiety, the results did show that social media can be used constructively as a coping strategy for adolescents to manage feelings of anxiety during the pandemic. Having been exposed to the findings of numerous research on the development of COVID-19 fear and its significant influence on the psychological well-being of people during the pandemic through the use of social media, the current article exposes the tendency of COVID-19 fear continuity and the fluctuation of psychological well-being among people in the two regions of Malaysia and Indonesia in the phase of endemic.

The world is currently in a transition phase of coronavirus endemicity. In Malaysia, the Ministry of Health announced the transition to the endemic phase at the beginning of April 2022, following the effectiveness of public health preventive and control measures, including the COVID-19 vaccination programme in managing the transmission of COVID-19 infection in the country [29]. The transition phase will provide the community with the opportunity to learn to adapt and live with public health measures that are least disruptive to daily life. Due to the progress in vaccination has been impressive, with 95% of Malaysian adults fully vaccinated by early November 2021, and at the end of April 2022, 70% had already received their third dose, and while the virus remains a threat, the country is emerging from this public health emergency [29]. In Indonesia, the focus on the battle against Covid-19 has been shifted to prepare for its transition period of the endemic phase. The Health Ministry Department of Indonesia released its report on the government's protocol formulation to "coexist with Covid-19" and this included the measure of accelerating vaccinations as well as improving tracing and testing rates [30]. The COVID-19 endemic phase in Indonesia is predicted to begin at the end of this year to follow the country's requirement shift from a pandemic to the endemicity with the measure of 70% vaccination, while currently 79.86% of the population is inoculated with an additional 20.54% of the third-dose [31].

The hopes are to contribute to society on the incidences and prevalences of COVID-19 fear and psychological well-being among people. This article serves as a measure of individuals' experiences in the use of social media and for the awareness among people and other policymakers and health care workers on utilising social media during a crisis. This could also serve as additional information to guide people in their preventative measures to be vigilant in information transfer to other people and to filter some meticulous

information for positive outcomes in their psychological well-being.

**A. Conceptual Framework**

The following portrays the conceptual framework of the study.

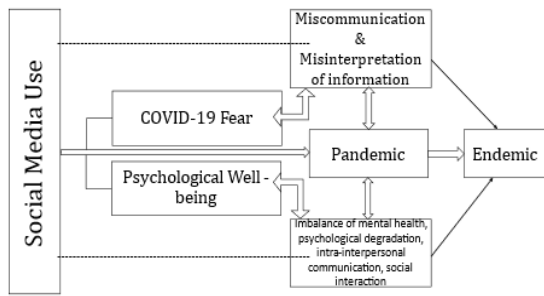


Fig. 1. Research conceptual framework.

Fig. 1 portrays the role of social media in influencing the occurrence of COVID-19 fear which is the result of the miscommunication and misinterpretation of the information during the pandemic, thus leading to the imbalance of mental health, the rise of psychological degradation, problems in intra-interpersonal communication and social interaction to affect the psychological well-being of people during the pandemic. This phenomenon eventually creates another episode of living with unpredictable doubts, fear, worry and other psychological conditions in the phase of endemic.

**B. Theoretical Framework**

The current article focuses on the importance of human motivation and personality in social contexts. Self-Determination Theory (SDT) explained extrinsic and intrinsic motivation [32] which includes the three comprehensive human needs. The needs are pertinent for optimal growth and functioning, and these three needs are competence, autonomy and relatedness. Deci and Ryan [32] explained the competence component as one’s experience of mastery and being effective in his/her activities. While autonomy describes the feeling to choose and to willingly endorse the behaviour to perform independently, the relatedness component explains how one feels connected and belonged to others. SDT further elaborates that these three psychological needs strongly influence people to motivate their thoughts and behaviours. It emphasizes the supportive condition within the environment whereby the quality of motivation will be more autonomous when the social environment is more supportive of these psychological needs. Alternatively, the quality of motivation will be more controlled when psychological needs are not well met or even thwarted through social interactions. The theory highlights the importance of achieving certain goals over time when people are autonomously motivated.

The theory is used to explain how social media could be one of the primary functions to explain people’s social environment which promotes their strivings to support other people’s psychological needs. The influence of social media in this context could be perceived as a motivating factor for people to involve in their vigilant steps of filtering the

information supporting their current psychological condition. Attempting to grasp and acknowledge other people’s perspectives, selectively conveying the message and providing the rationale for information transfer are the choices to make when dealing with the use of social media. Such autonomous character leads to established self-determination to serve as a measure in controlling the negative behaviours to occur.

Although the challenges faced by people during the COVID-19 pandemic, their competency in filtering information and transferring information to others by using social media, encourage their sense of initiation to provide themselves with mechanisms to bring positive outcomes to the behaviours. People feel competence in making changes and such competency character helps enhance their psychological well-being better. Further use of social media could affect other people’s significant characters, and therefore, when others involve and show interest in one’s activities, it shows greater empathy and a feeling of relatedness to one another instead of portraying the information received in a more irrelevant way. Figure 2 exposes the concept of Self-Determination Theory (SDT) by Deci and Ryan [32].

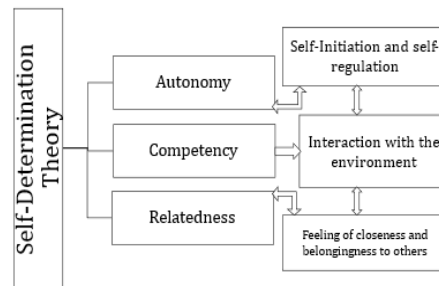


Fig. 2. Self-determination theory (Deci & Ryan, 2012).

**III. METHODOLOGY**

The current exposure of the secondary data from the literature reviews supports the data synthesis to analyse the phenomenon of social media use, fear of COVID-19 and psychological well-being among people that have been portrayed by findings from different research works. Thematic data synthesis in qualitative research was used in this systematic review indicate the specific outcomes of each study under this current search eligibility for the variables used in further analysis [33]. In addition, the use of Self-Determination Theory (SDT) thus supports the method of the data synthesis for the article to elaborate on the significant facts of the study variables. Analysis of secondary data from different research findings reviews the needs of variables to be investigated. Of all 39 reviews of the literature, 5 discussed the variables using experimental design, 11 utilised correlational analysis, 8 used regression analysis, 7 explained qualitative procedures using the phenomenological technique, and the rest of 8 other reviews utilised path analysis in explaining the phenomena of social media usage.

**A. Research Procedure**

Data synthesis is gained through the systematic review process where extracted data are to be combined and

evaluated to determine the outcomes of the review. This current article only determines the secondary data collected to analyse each review criteria and findings to be exposed as a measure of observational analysis.

1) Phase 1: Need analysis

This phase involves categorizing the components of variables into the different study designs. The need analysis includes the identification and selection of a few reviews of the literature to place in the components for categorization. The category consists of the previous research’s findings from different fields of work, identifying elements of variables discussed in those specific reviews. Identifying and selecting components for social media use comprise the other sub-variables to group into one category such as *information gathering, own knowledge, information transfer, leisure activity, and social recognition*. The identification of components in COVID-19 fear variable based on data synthesis of the collected research findings to include *excessive worry, prolonged stress, persistent anxiety, disturbed pattern of sleep, depression, and psychological distress*. Component identification extracted from psychological well-being variables include *mental exhaustion, cognitive dysfunctions, social interaction, intra-interpersonal relationship, self- acceptance and personal growth*. This phase involves a systematic review/meta-analysis in the selection of the components of the variables used in the study [34]. In this stage, data on the variables are to be collected to identify and select some relevant research related to the features/components of both.

2)Phase 2: Data synthesis and analysis

In data synthesis, the development of themes emerged from the identification of components as sub-variables to determine further reviews of the literature for the generated themes. Such identified factors are to determine the process of developing selected themes to validate using some selected theories and reviews of the literature. In this phase, factors associated with the components are determined to validate the procedure in the method of thematic coding [35]. Incorporating components and features identified in phase 1 and verified in phase 2 into data synthesis and analysis. The themes generated from the thematic coding in phase 2 are to be presented to facilitate the flow of review extraction. The researchers analyze the use of the specific and selected features and components of the three constructs to enable the selection of study design from the selected reviews. The specific details of generated themes from thematic coding show the conceptual framework incorporates the analysis of the selected theory to accurately present the method. Coding development for the generated themes is discussed further in Fig. 3 for data synthesis in systematic review of the study variables.

IV. RESULTS AND DISCUSSION

Data synthesis and extraction procedures are summarized in Fig. 3.

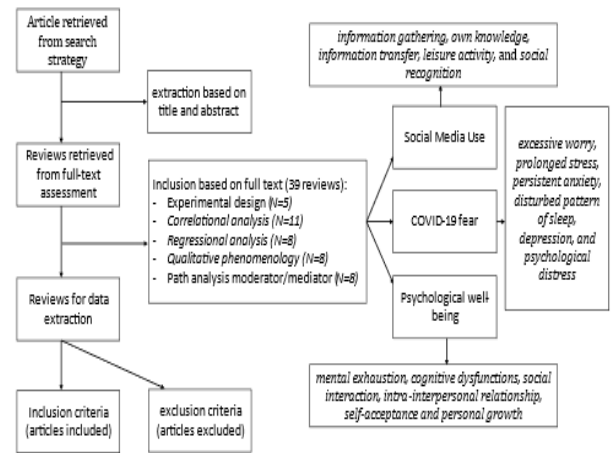


Fig. 3. Data synthesis in the systematic review.

Results of the current data synthesis in this article expose the extraction from the selected literature reviews to indicate the numbers of articles comprised into the inclusion criteria of the study fit the needs of analysis of each variable [36]. The procedure indicates synthesizing data from multiple searches of the articles. Articles retrieved from the search strategy are extracted based on titles and abstracts. The reviews are retrieved using the search full assessment strategy extracted from different engine searches such as *Google Scholar, PsychNet, and PubMed*, through the use of the *Mendeley* search system for the 39 extraction articles to fit the data synthesis procedure. Data inclusion involved the selection of the components of article search and those articles with findings that do not fit the criteria excluded. The development of thematic coding for naming and labelling the criteria under specific variables is extracted from the inclusion search to ease the procedure in fitting the needs of the analysis and data synthesis. The current systematic review specified the data extraction technique to verify each coding developed from the search eligibility of databases to assist in the selection of key terms for each variable in the study. Inclusion’s criteria thus composite the significant coding for social media use, COVID-19 fear and psychological well-being respectively. Table I showed the development of coding form data synthesis technique where reviews retrieved from full-text assessment leading to data extraction and inclusion based on the 39 reviews.

TABLE I. RESEARCH VALIDATION PROCEDURE

Variables	Themes	Validation
Social Media Use	Information Gathering & Sharing	(Hashim et al., 2020; Wong et al., 2020; Gupyta & Bashir, 2018; Abdul Rashid et al., 2021) SDT (C)
	Own Knowledge	(Allington at al., 2020; Abdul Rashid et al., 2021) SDT (A)
	Information Transfer	(Pang, 2018; Deepa & Priya, 2020; Ahmad & Murad, 2020; Hashim et al., 2020; Yasir et al., 2020) ) SDT (R)
	Leisure Activity	(Coyne et al., 2020; Wong et al., 2020) SDT (A)
	Social Recognition	(Karim et al., 2020; Abdul Rashid et al., 2021; Cauberghe et al., 2021) SDT (R)
COVID-19 Fear	Excessive Worry	(Ahmad & Murad, 2020; Kassim et al., 2021; Kheng & Chan, 2021) SDT (A)
	Prolonged Stress	(Karim et al., 2020; Silva et al.,

		2020; Arshad, 2022) SDT (A)
	Persistent Anxiety	(Kwong et al., 2020; Silva et al., 2020) SDT (A)
	Disturbed Pattern of Sleep	(Mydin, 2022, Brooks et al., 2020) SDT (A)
	Depression	(Banerjee & Rai, 2020; Deepa & Priya, 2020, Varma et al., 2021) ) SDT (A)
	Psychological distress	(Karim et al., 2020; Silva et al., 2020, Kheng & Chan, 2022) SDT (A)
Psychological well-being	Mental Exhaustion	(Hassan, 2020; Santamaria et al., 2021) SDT (A)
	Cognitive Dysfunctions	(Aperribai et al., 2020; Santamaria et al., 2021) SDT (A)
	Social Interaction	(Silva et al., 2020; Cauberghe et al., 2021) SDT (C)
	Intra-interpersonal Relationship	(Abdul khaiyom, 2020; Fitriana, 2020) SDT (R)
	Self-acceptance	(Abdul khaiyom, 2020; Fitriana, 2020; Alwafaz et al., 2021) SDT (A)
	Personal growth	(Abdul khaiyom, 2020; Fitriana, 2020; Alwafaz et al., 2021) SDT (A)

Table I summarised validation procedure to support the thematic synthesis in qualitative method. Study synthesized 5 different inclusions based on experimental design, correlational analysis, regression analysis, qualitative phenomenology and path analysis with each respective search eligibility number to produce the generated themes for the three variables. Themes generated from the social media were *information gathering, own knowledge, information transfer, leisure activity, and social recognition*, while themes generated from COVID-19 fear were *excessive worry, prolonged stress, persistent anxiety, disturbed pattern of sleep, depression, and psychological distress*, and from psychological well-being were *mental exhaustion, cognitive dysfunctions, social interaction, intra-interpersonal relationship, self-acceptance and personal growth* respectively.

Such thematic analysis procedure in data synthesis were extracted from different search eligibility technique used in this current study emphasizing on the inclusion based full text of the articles' contents extracted for the purpose of components validity. Those themes were further verified by the components of the Self-Determination Theory (SDT). Each emerging theme form different variable was developed from data synthesis technique whereby each of 39 studies were identified to validate the variables. The themes are to be further validated and verified using quantitative method in further step of this current research, which will be discussed by its own section under quantitative analysis in the near future.

## V. CONCLUSION

The current study highlights the importance of the three study variables to be explored. Using a systematic review, the need for analysis and data synthesis simplifies the study to be more efficient and effective in its data search and analysis. Such a method provides the researchers with systematic strategies for collecting the information and gathering suitable reviews to synthesize data for extracting the

components needed in each study variable. Such qualitative thematic synthesis developed further analysis on the accuracy of the three variables used in the future quantitative analysis, thus validates the significant use of the variables in further analysis. This technique eases the process of further quantitative analysis to develop validation on the selected instruments to use in future research. The current systematic review on social media use, COVID-19 fear and psychological well-being among people is the comprehensive technique in the initial method of qualitative research to compile components needed for further analysis. Therefore, based on the objectives of the study, the use of social media, COVID-19 fear and psychological well-being among people across ages during the pandemic and endemic are explored and the findings suggest components in each variable are achieved by using the data synthesis technique. The validation procedure verified the accurate development of themes supported by the reviews of the literature and the component of the theory (SDT). Such themes were produced from the findings of the previous research and were synchronised with the needs of analysis in the current research technique. occurrences of the The findings also indicate the relationships of the three variables discussed by the selected reviews to be extracted into the current inclusion criteria for the development of thematic coding based on the data search via different engines. Therefore, further studies are recommended to base such a systematic review analysis on the development of further quantitative methods using statistical procedures.

## CONFLICT OF INTEREST

The submitted work is carried out with no conflict of interest. The authors declare no conflict of interest.

## AUTHOR CONTRIBUTIONS

Each of the authors has her own contribution to this work, Mimi Fitriana prepared the manuscripts and conducted research analysis. Setiawati Intan Savitri conducted data dissemination and screening, Jasmine Ahmad reviewed the manuscript and assist in ethic clearance. Rizwanah Souket Ali contributed in search for the literature reviews, and Zahra Khusnul Latifah assisted in data collection and questionnaires preparation. All authors had approved the final version.

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