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Mental health of working adults: their work and their digital literacy

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ABSTRACT

The interplay between digital interactions and mental health among working adults is intensifying, driven by the pervasiveness of social media and its potential effects on psychological wellness. This research utilizes a socio-cognitive approach to explore how perceived social support (PSS), work mattering, and work self-efficacy (WSE) mediated by new media literacy (NML) influence general mental health (GMH) in a digital era. Through extensive empirical testing, the study reveals that high levels of NML can directly enhance the positive effects of PSS on GMH, bypassing the need for intermediary states like mattering and self-efficacy. This highlights the critical role of digital skills in moderating social support mechanisms and mental health, suggesting that integrating digital literacy into mental health strategies could be vital for improving workplace well-being in contemporary digitally-focused environments.

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1. INTRODUCTION

The relationship between online life and mental health among working adults has been demanding more attention in the last decade. As digital interactions become more pervasive, the influence of social media on mental wellness has emerged as a crucial topic of study. This interplay significantly affects working individuals as everyone are often engaged in social media, both personally and professionally. Recent studies indicates that the way individuals interact on these platforms can either contribute to or alleviate psychological distress. For example, a study examining the impact of social media activities and emotion regulation strategies found that adaptive strategies could mitigate the negative effects of certain online behaviors on mental health, highlighting the complex dynamics of online interactions [1]. Additionally, the broader implications of obtaining, believing, and relying on online social feedback on mental health are accentuated by findings that point to the significant role of digital environments in shaping psychological outcomes among adults [2]. However, the significant influence of online social feedback on adult psychological outcomes has been reported; the role of online social comparison, for example, was found to potentially reduce psychological distress during quarantine periods amidst the pandemic outbreak, suggesting that such comparisons might serve as protective factors for mental well-being [3]. Additionally, the perception of social support through online environment has also been reported to significantly mitigate symptoms like depression, anxiety, and even suicide ideation [4] and poor sleep [5].

General mental health (GMH) is defined by the World Health Organization as a state of well-being in which an individual realizes their abilities, can cope with the normal stresses of life, can work productively, and is able to contribute to their community and society. This includes various dimensions of mental health

including emotional, psychological, and social well-being. It reflects how individuals perceive their lives, their ability to manage feelings and cope with difficulties, and their overall psychological resilience and functioning [6]. The significance of GMH among working adults is important as it was reported that psychological disruption among them that occurred in a period longer than six months would lead to more permanent mental health issues that are more difficult to reverse [7], [8].

Some studies during the pandemic outbreak reported that the lack of social feedback predicted lower state of GMH among adults. A study showed that social isolation and loneliness significantly heightened risks of depression and anxiety among children and adolescents, underscoring the negative impact of reduced social feedback on GMH [9]. Another systematic review revealed widespread psychological distress across general populations during the lockdown amidst the pandemic outbreak, highlighting how social restrictions diminished regular social feedback mechanisms, exacerbating mental health issues [10]. Moreover, a longitudinal study within the UK population indicated a deterioration in mental health correlated with the reduction in social interactions due to lockdown measures, suggesting that changes in social feedback directly influence GMH [11]. Acknowledging the importance of having a workforce consisting of mentally healthy working adults, we acknowledge that in the current time, it is virtually impossible for any individual to completely avoid receiving social feedback in today's interconnected world [12]. Thereby, this study was aimed at investigating the formation and protection of mental wellbeing among working adults related to their work and social life. It was conducted using socio-cognitive approach; a point of view where mental wellbeing is seen as a result of individuals' cognition that derives from their social interactions [13].

Past studies have shown that the contents of social media play a critical role in influencing mental health through the feedback it facilitates [14]; excessive exposure to social media was associated with increased anxiety and depression. Further, a systematic review by Phalswal *et al.* [15] confirmed that social media's rapid dissemination of information—and misinformation—can significantly affect the mental health of its users, particularly heightening stress and anxiety levels among individuals without adequate critical thinking skills that allow them to selectively consume or produce social media contents. In the context of working adults, social feedback through social media has also been reported to mitigate their work stress [16] and improve the sense of being socially empowered [17]. Nevertheless, the way individuals interact with media content has been evolved, especially after the surge of social media reliance during the lockdown era amidst the pandemic outbreak [18], [19]. Many digital media users have developed more adequate skills and competence required to effectively navigate, evaluate, and create content using the latest digital technologies and platforms, or also known as new media literacy (NML) [20].

2. LITERATURE
2.1. Socio-cognitive factors of general mental health: perceived social support (PSS)

The perception that one is supported by others, especially by significant others, has been recorded as a crucial predictor of positive senses such as mattering to others, belonging, and social safety [21], [22], as well as general psychological wellbeing [23]. Confirming that, it was suggested that PSS from one's professional circle serves as a moderating buffer [24] of GMH among adult workers. Exacerbating that, working adults who perceived higher social support exhibited fewer mental health issues like posttraumatic stress disorder (PTSD), anxiety, and depression in the face of adversity compared to those with lower perceived support levels [25]. In other words, strengthening social support networks can be a vital strategy in promoting mental health among working adults as the contribution of PSS to GMH of working adults was significantly mediated by the sense of mattering, the feeling of being valued and important to others [26]. In specific situations where social interactions are limited, such as quarantine, loneliness, or perceived marginalization, the extent to which individuals feel they matter significantly predicts their life satisfaction, a proxy for mental health, through the mediating role of perceived social inclusion [27]. In line with that, Lim *et al.* [28] advocated that mattering and unconditional self-acceptance played serial partial mediation on the relationship between PSS and mental wellbeing.

2.2. Socio-cognitive factors of general mental health: work mattering

As aforementioned, mattering is the sense that one matters to others, and it is contingent upon how one perceives the social support from others. Studies related to online social interaction suggested that positive online social feedback predicts higher levels of mattering. In the context of working adults, mattering in the workplace or work mattering refers to the perception that one's work is meaningful, contributes significantly to organizational or societal goals, and that their efforts are recognized and valued within the workplace [16]. This sense of significance at work is pivotal as it correlates with increased job satisfaction, lower burnout rates, and overall better job performance, enhancing both personal and organizational outcomes. In other words, GMH of working individuals is protected by their adequate levels of work mattering (WM). Furthermore, WM has been associated with higher work engagement to predict further job satisfaction that protects workers from

mental health risks [29]. While it was reported the sense of mattering is a product of PSS [30], mattering was also a significant predictor of another key socio-cognitive element in the workplace namely work self-efficacy (WSE), the workers' belief in their capability to execute tasks successfully.

2.3. Socio-cognitive factors of general mental health: work self-efficacy

WSE does not only boost the confidence to meet work demands but also elevates overall work performance [31]. The positive impact of high WSE extends beyond mere task completion to fostering a proactive, resilient workforce capable of adapting to various challenges, thereby reinforcing the critical role of psychological constructs in enhancing work-life quality. Choi et al. [32] demonstrated that higher WSE was associated with better mental health outcomes among older workers, mediated by increased work engagement. Similarly, Horn et al. [33] identified varying trajectories of return-to-work self-efficacy among employees with mental health problems, where higher initial self-efficacy was linked to more positive mental health outcomes over time. In other words, WSE is an essential element to mitigate mental health issues in the workplace by helping individuals manage work-related challenges more effectively, protecting them from job burnout, job stress, and other mental health risks at work. This protective effect is reported to be crucial in high-stress environments, such as among community mental health workers [34]. The aforementioned studies suggested a serial relationship among PSS, WM, and WSE in improving and protecting GMH among working adults; individuals who perceived that they are supported by their working environment would likely to feel that they matter at work, and subsequently develop the belief that they can do their tasks well, which eventually improve and protect their general mental wellbeing. Nevertheless, most of the studies related to socio-cognitive factors and GMH at work were conducted either before or during the surge of online social feedback reliance amidst the pandemic outbreak. With the pandemic significantly subsided, the reliance over social media or any digital media is re-questioned; without the fear of getting infected, losing jobs, or being socially disconnected due to the lockdown, would people still produce, consume, and rely on online digital social feedback the way they did before? Or do some people have developed more adequate literacy that enables them to critically analyze information, which enhances their ability to engage in critical thinking processes by fostering a better understanding and civic mindfulness apart from technological expertise [35], or also known as new media literacy (NML).

2.4. New media literacy and its interaction with socio-cognitive factors of mental health

NML encompasses the skills and knowledge necessary for effective communication, comprehension, and critique of digital content and platforms, which are increasingly relevant in today's workplace. Working adults benefit from NML by being able to navigate digital media critically, enhancing their ability to understand, create, and share content responsibly, thus contributing to a more informed and engaged workforce. For example, employees with high NML can discern credible information sources, benefiting organizational decision-making and communication dynamics [36].

NML might interact with among working adults, and it can be seen from how digital skills impact social dynamics among colleagues. Individuals with higher NML are better equipped to foster positive online interactions, which can enhance PSS as they can critically select and curate the online social feedback that they can perceive as social support. Conversely, low NML might lead to misunderstandings or conflicts due to poor practices of online communication and critical thinking; proficient use of social media at work correlates with higher job satisfaction and a stronger sense of community, which in turn supports mental health by reduces feelings of isolation [37].

In terms of WM, NML enhances an individual's ability to express their contributions and achievements through digital platforms, thereby reinforcing the significance of their work within the organization. High NML allows working adults to effectively showcase their work online, potentially increasing their sense of mattering at work. This visibility can lead to greater recognition and validation from peers and supervisors, thus enhancing overall job satisfaction and organizational commitment [38]. Furthermore, NML also interacts with WSE by equipping employees with the confidence to tackle job-related tasks using digital tools and media. Employees who are proficient in digital media are likely to feel more competent in their roles, directly boosting their WSE, which improves individual performance and contributes to better team dynamics as they can provide support to colleagues with less NML, enhancing collective efficacy in the organization [39]. The Interaction Involvement theory posits that an individual's engagement in their social and professional environment is moderated by their ability to effectively interact through communication media. Thus, higher media interaction skills facilitate better involvement in organizational and social processes, enhancing both personal and collective outcomes in the workplace [40]. The aforementioned studies and theory suggested the moderated serial mediation as illustrated in Figure 1.
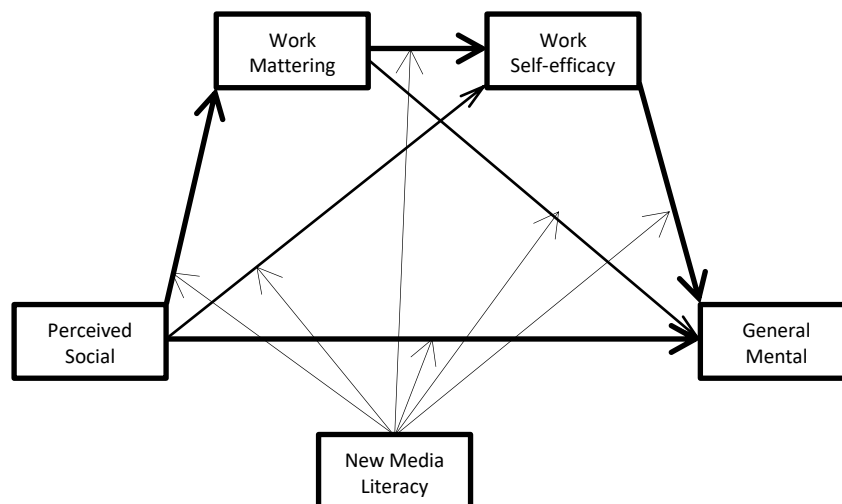
Figure 1. Moderated serial mediation model

Figure 1 illustrate our hypothesis that WM and WSE play a serial mediation on the contribution of PSS to GMH, and the serial mediation was moderated by NML that interacts with PSS, WM, and WSE. In other words, this study was conducted to test the hypothesis that adult workers' perception that they are supported by their social environment would likely to feel they matter at work. Hence, they are able to do their tasks well and develop better mental wellbeing as a consequence, in condition that they are digitally adept and critical enough to consume, choose, and share positive online digital content.

3.   METHOD
3.1. Sampling and participants

Purposive sampling was conducted with inclusion criteria as working adults, 18 years of age or older, fluent in English, and not diagnosed with any mental health problems. The G*Power sample size calculator suggested the sample size of 119, see Figure 2. A total of 139 participants were recruited to participate in this current study.
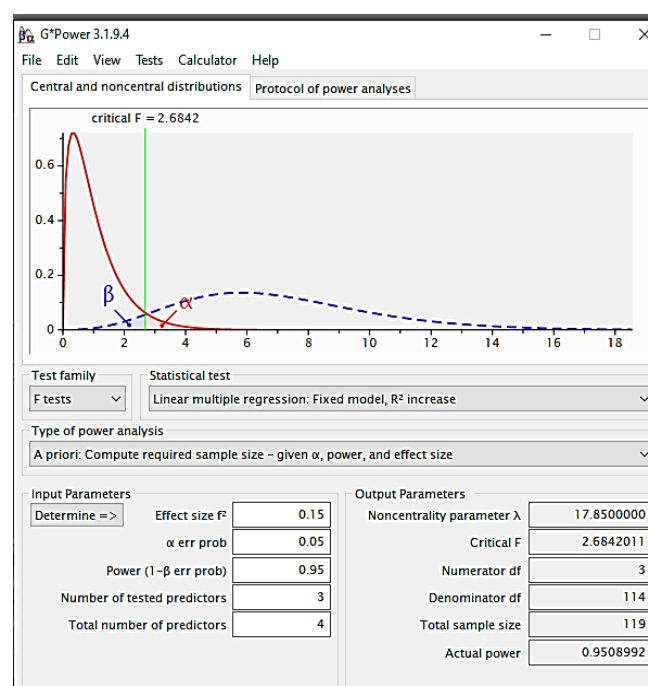

Figure 2. G*Power sample size calculator result

3.2. Materials

The outcome variable, GMH was measured by using general health questionnaire (GHQ-12). The predictor variable, PSS was gauged by employing multidimensional scale of perceived social support (MSPSS) while the first mediator, work mattering was measured by using work mattering scale (WMS). The second mediator variable, WSE was measured by employing the scale of work self-efficacy scale (WSES). The moderator variable, new media literacy was measured by using new media literacy scale (NMLS) [41]. GHQ-12 is a screening instrument used to determine the level of psychological distress an individual has experienced recently. This scale emphasizes deviations from normal functioning rather than enduring traits, focusing only on disorders or adjustment patterns linked to distress. Each question on the scale offers four response options, ranging from "better than usual" to "much less than usual." The Cronbach's α coefficient of the whole GHQ-12 was 0.892 [42]. MSPSS is a 12-item instrument developed to evaluate an individual's perception of support from family, friends, and a significant other. The scale has been validated with strong in-sample reliability, achieving an alpha of .88. An example of an item from this scale is: "My family really tries to help me".

WMS [43] is a 10-item tool designed to assess one's sense of significance to others (such as coworkers) and to society overall. The scale demonstrated high in-sample reliability with an alpha of .92. An example of an item from this scale is: "I am connected to society through my work". Items ranging from 1 (very strongly disagree) to 7 (very strongly agree). WSES consists of 10 items that measure individuals' perceptions in various work-related areas, such as handling interpersonal relationships with peers and supervisors, collaborating with colleagues of diverse backgrounds and experiences, acting effectively in a professional setting, learning new work methodologies, adhering to schedules and meeting deadlines, and fulfilling set objectives. Participants rated their confidence in performing these actions on a Likert scale ranging from 1 (not well at all) to 5 (very well). The reliability of the scale was demonstrated with Cronbach's Alpha coefficients of .85 for the first factor and .82 for the second factor. NMLS includes 35 questions divided into four sub-scales to assess different aspects of media literacy. Participants rated their agreement with each item on a 5-point Likert scale, ranging from 1 ('Strongly disagree') to 5 ('Strongly agree'). A preliminary pilot test involving 20 participants was conducted to ensure the clarity and internal consistency of the questions. Despite the Cronbach's Alpha coefficients being somewhat lower than those in previous research by Koc and Barut [41], they remained above .7, indicating satisfactory reliability.

3.3. Procedure

Prior to starting the study, ethical approval was obtained by the Ethics Review Board (ERB) of the Faculty of Psychology and Social Sciences at the University of Cyberjaya, Malaysia. The research was advertised on several social media channels like Facebook, Twitter, Instagram, WhatsApp, and LinkedIn via the researcher's personal accounts, and included a link to the online survey. Interested participants voluntarily accessed the survey through this link, which led them to a Google Form. Before filling out the questionnaires, participants gave their consent by selecting the 'I agree' option, thereby safeguarding their rights and privacy. Upon completing the survey, participants were thanked and encouraged to share the survey link with others who met the study criteria. The researcher then analyzed the collected data.

3.4. Data analysis

Bootstrap analysis with 5,000 resampling at 95% confidence interval was conducted to analyze the hypothesis by employing PROCESS Macro 4.2 for SPSS 29, set to the model 92 for moderated serial mediation analysis. The Bootstrap method with 5,000 resampling iterations and a 95% confidence interval is a robust approach for statistical inference, especially in complex models like the PROCESS Macro for SPSS Model 92. The increase in the number of bootstraps, particularly to 5,000, significantly refines the standard error estimates, providing more accurate and narrower confidence intervals, thereby enhancing the reliability of the statistical conclusions [44]. Bootstrap methods, including those applied in complex statistical models like the SPSS Macro Model, have been demonstrated to provide better coverage probabilities compared to traditional methods, ensuring that the statistical estimates more faithfully represent the true population parameters, even in intricate regression models [45].

4. RESULTS AND DISCUSSION

4.1. Results

As a summary, the results of the conditional direct and indirect effects are depicted in the following tables. Table 1 depicts the conditional direct effects of PSS on GMH under the different levels of NML. It shows the perceived social support significantly predicts general mental health among individuals with moderate and high NML, highlighting that the ability to critically select, consume, believe, and produce digital content affect helps individuals who perceived that their social environment is supportive to improve stable

mental health. The effect indicated that one point increment of perception that one is socially supported contributed significantly to 1.3 points increment in general mental health. Table 2 illustrate the serial mediation roles of work mattering and work self-efficacy on the contribution of perceived social support on general mental health among working adults at different levels of new media literacy.

Table 1. Conditional direct effect of PSS on GMH

NML	Effect	se	t	P	LLCI	ULCI
116.800	-.694	-.552	-1.258	.211	-1.785	.397
138.000	-.972*	.423	-2.299	.023	-1.808	-.136
162.600	-1.294*	.550	-2.353	.020	-2.382	-.206

Table 2. Conditional indirect effect: WM→WSE→GMH

NML	Effect	BootSE	BootLLCI	BootULCI	NML	Effect
116.800	-.239*	.166	-.648	-.011	116.800	-.239*
138.000	-.160-	.114	-.419	-.008	138.000	-.160-
162.600	-.091	.121	-.347	.157	162.600	-.091

Table 2 depicts the results of the moderated serial mediation hypothesis, where work mattering and work self-efficacy were hypothesized to play serial mediation roles on the contribution of perceived social support and general mental health among working adults. It was shown that the two mediators played significant serial mediation roles in the condition of low and moderate levels of NML, while at the high levels of NML, the serial mediation was no longer significant. It can be interpreted that when working adults with low and moderate digital literacy perceived that they are supported, they would likely sense that they matter to others, and therefore believe that they are capable of doing their task well, and this belief eventually improve their general mental health. Oppositely, working adults who are digitally adept and developed critical thinking ability to navigate themselves in the digital realm would likely to improve their general mental health when they feel socially supported, without having to feel they matter or capable of doing their job well. In other words, the feeling that one is supported by others is enough to improve their general mental wellbeing if they have the ability to critically consume and produce digital media content.

4.2. Discussion

The relationship PSS and GMH, especially through the mediating roles of WM and WSE among working adults is nuanced and significantly influenced by their NML. Contrasting the findings of the present study with past research highlights critical interactions between social support mechanisms and digital competencies. For example, prior studies emphasized the direct impact of social media on mental health, suggesting both protective and detrimental effects [1]–[3]. However, this study uniquely delineates the conditional nature of these effects, particularly under varying levels of NML, a factor not extensively controlled for in earlier studies. This study's results align with findings by Grey et al. [5], underscoring the importance of PSS in mitigating mental health issues. Yet, it diverges by illustrating that higher NML can modulate this relationship, where high NML diminishes the need for intermediary feelings of mattering or self-efficacy to feel supported, unlike what was suggested by [26], [28]. The role of NML in enhancing direct benefits of PSS without reliance on mediators could be indicative of digitally literate individuals' superior capability to leverage online environments for psychological resilience, a possibility not extensively explored in previous works like those by Bahramian et al. [46] and Horn et al. [33].

4.2.1. Implication

Practically, these findings suggest that enhancing NML could be an effective strategy for improving mental health interventions in digitally evolving workplaces. Organizations might focus on training programs that enhance digital skills, potentially simplifying the pathways through which social support translates into improved mental health outcomes. Theoretically, this study extends the socio-cognitive models of mental health by incorporating digital literacy as a pivotal factor that can modify traditional pathways like those mediated by mattering and self-efficacy, suggesting a more integrated model of mental health that reflects contemporary digital realities.

4.2.2. Limitations and suggestions

This study's primary limitation lies in its cross-sectional design, which precludes causal inferences about the relationships between PSS, WM, WSE, and GMH. Future research could employ longitudinal methods to better delineate the directionality of these associations and to examine the stability of NML's moderating effects over time. Additionally, expanding the demographic scope beyond working adults to include varied occupational and age groups could enhance the generalizability of the findings. Studies exploring the impact of specific types of digital content and interaction modalities on mental health could also provide more detailed guidance for digital literacy interventions.

5. CONCLUSION

In conclusion, this study highlights the nuanced role of new media literacy in moderating the impact of perceived social support on general mental health through the pathways of work mattering and self-efficacy. By showing that high NML can streamline the beneficial effects of social support directly to mental health improvements, it points to the importance of integrating digital literacy into mental health strategies within the modern, digitally-infused workplace. These insights not only contribute to our theoretical understanding of social support dynamics in a digital age but also offer practical pathways for enhancing employee well-being through targeted digital skills development.

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