



Stop Running Away from Stress: Practice Mindfulness Instead

Fatin Zaida Zaidi^(✉), Lai Ming Ming, and Anisah Jumaat

Multimedia University, Selangor, Malaysia

fatinzaidazaidi@gmail.com, mmlai@mmu.edu.my

Abstract. Stress is a natural response to being unable to cope with specific demands and events. Even though it is a well-known fact that almost everyone is facing stress, discussing stress is still taboo. Stress has been something everyone has been expected to 'adapt to' since 'everyone else is doing it.' Day by day, people feel burdened and pressured, wanting to handle their stress yet feeling like they meet dead ends. Stress sparks emotional tension, growing tiredness, over-strain, and discomfort, which affect one's health, both mentally and physically. However, with mindfulness practices, people learn how to focus on the present moment and tend to have the ability to be calm, leading to better reactions to stressful situations. This study is timely by exploring the implementation of mindfulness intervention in managing stress and improving well-being. In essence, mindfulness allows someone to be non-judgemental about their feelings and situations as they are in the present moment. By practicing mindfulness, people will have a better approach to managing their stress, have an accepting mind, and be happier.

Keywords: Stress · Mindfulness · Well-being

1 Stress

Humans face multiple events daily that may be perceived as stressful [1]. Cohen et al. [2] defined stress as a generalized perception of an individual. The National Institute of Mental Health [3] indicated that stress is a natural human body reaction towards any events that make us feel threatened, upset, or anxious - widely known as the fight-or-flight response. A person's values and resources influence how they interpret stressful situations. People characterize those stressful situations when it exceeds the person's available resources [2]. Thus, people perceive and react to stressful events differently.

Individuals frequently assess a situation in a way that changes its emotional significance or meaning, either by altering their perception of the event or their perceived capacity to deal with the demands it poses. The amount to which situations are rated as unfavorable, too demanding, or stressful is of particular importance to us in this process [4].

A global study conducted by Oracle and Workplace Intelligence called AI@Work 2020 examined 20,000 participants. It was found that 70% of employees are experiencing more stress and anxiety at work than in any prior year. Working adults are prone to

stressful events, with statistics of 35% working an extra 40 h or more each month while 25% of people are burnt out from overwork. It was proven that stress is alarming among people, especially working adults [5].

Typically, most people think stress only surrounds them. However, stress can also influence those around us, particularly our children [6]. Failure to take corrective actions in managing stress will lead to chronic stress conditions. Chronic stress can produce chemical changes in the body, leading to an increase in blood pressure, heart rate, and blood sugar levels. Severe, long-term stress alters the brain, which can cause mental and physical health issues [7]. Thus, managing stress is vital to protect ourselves from experiencing chronic stress and protect our loved ones.

1.1 Impact of Stress

People respond to stress as one of their survival methods in a threatening situation. Humans perceive situations to be stressful as they believe the situations match their categorization of being stressful [8]. Accordingly, scientists emphasized that these threats are detected within the brain by the amygdala, the hippocampus, and the prefrontal cortex. The hippocampus regulates emotions and memories and has the ability to override the amygdala. Amygdala is in charge of giving responses to threats, fear, and stress. The way the amygdala responds to stress will be sent to the prefrontal cortex, where it uses attention to override the amygdala [9]. This type of cognitive thinking that sends to the amygdala and prefrontal cortex, showing how people respond and tend to feel stress. Furthermore, humans are used to using the fight, flight, or freeze response in the event of stress; it activates the sympathetic nervous system. It provides oxygen to arms and legs instead of to the brain, preparing for humans to fight or flee.

It is well-known to everyone that stress will affect a human's life. The first one is acute stress which is the short-term effect. It is related to how the response is activated when it perceives threatening situations by stimulating the release of neurotransmitters and creating an adrenaline rush which increases the heart rate [10]. Usually, people experience stress-related symptoms when facing an adrenaline rush. Examples of stress-related symptoms are anxiety, depression, negative emotions, nervousness, sadness, and hopelessness [11].

The next one is chronic stress which is the long-term effect of stress. It affects personal dysfunction of daily activity as it is derived from the importance of the prefrontal cortex in getting information from the amygdala and making decisions. The high level of stress strengthens connections in the amygdala and increases the concentration of gray matter in the amygdala, leading to impairment of functioning in the prefrontal cortex [12]. As a result, the stress hormone called cortisol is produced, increasing energy for the body to utilize and decreasing the functioning of the immune system [10].

1.2 Normal Response to Stress

When humans face stress, less oxygen is given to the brain, specifically in the prefrontal cortex, making it tough to think coherently. Therefore, people tackle their stress by distracting themselves. Many of us use avoidance coping strategies where people usually tend to binge-eat, binge-watch, or have a tiny amount of sleep. Avoidance coping is

associated with distress and depression because it involves cognitive and behavioral attempts aimed at denying, diminishing, or otherwise avoiding dealing directly with unpleasant demands [13].

Studies from Harvard Medical School in 2021 [14] said that women are more likely to resort to food to cope with stress, while males are more likely to turn to drink or smoking. In the context of stress-producing more cortisol hormones, in 2007, British researchers devised an intriguing study that demonstrated that people who responded to stress with high cortisol levels were more prone to snack in reaction to daily problems in their everyday life. Relying on avoidance coping is likely to cause a wide range of stressors, allowing stress to fester and grow instead of allowing humans to manage it wisely [13]. Thus, avoidance coping is deemed harmful because it frequently exacerbates stress without assisting a person in dealing with the stressors [15].

2 Mindfulness

To tackle the cognitive thinking and reaction toward threats, fear, and stress, practicing mindfulness is proven by past studies to reduce stress and stress-related symptoms [11, 16]–[18]. Mindfulness influences various aspects of the functioning of cognitive abilities, including coping mechanisms, health-related quality of life, and attention. It has primarily been found to influence and reduce stress [19]. Mindfulness is well-defined as bringing attention to the things happening in the present moment in a non-judgmental way [11, 20]. Practicing mindfulness could lead to a human paying attention and staying aware, thus reacting to stress better. For humans to have the ability to respond to stress events and re-appraise their cognitive ability, mindfulness practices have been suggested to reduce stress and promote stress resilience pathways in the brain [21, 22]. While practicing mindfulness, human bodies and minds interact in a positive social interaction, thus releasing the oxytocin hormone and decreasing the stress level [23, 24].

Baer et al. [17] examined mindfulness and stress levels weekly throughout eight weeks of the mindfulness intervention period. The mindfulness intervention originally began with the mindfulness-based stress reduction (MBSR) program, 8-to10-week. The participants and the trainer meet weekly for 2 to 2 and a half-hour [20]. Kabat-Zinn [25] indicated that mindfulness leads to non-judgmental observation, making people understand that these are “just thoughts,” not reflections of truth. Thus, it resulted in mindfulness training consistent with cognitive-behavioral treatment, which leads to relaxation. With the intervention of MBSR provided, the respondents reported having changes in mindfulness after the second week of the MBSR program, while stress levels can be seen to be reduced in the fourth week. This study shows that mindfulness has an impact on reducing stress.

In Singh’s [26] study, it is proven that the student respondents have high mindfulness and are reported to have lower stress. This one-time survey indicated the direct relationship between mindfulness and stress as mindfulness successfully helps people deal with their unpleasant feelings. Mindful people become attentive to their thoughts and react better in stressful situations [17, 26].

According to the Zen and mindfulness master [27], there are five (5) steps to do mindfulness practices. The first step is mindful breathing, starting with sitting on a

chair or lying back in a comfortable position, preferably in a serene, quiet place. Take a deep and focused breath by observing the breath in its natural state as it passes through the body. Be in the present moment of breathing exercises, focusing on breathe-in and breathe-out and not thinking over other things.

Secondly, the concentration. Logically while doing mindful breathing, our mind is interrupted and swayed but it is essential to continue and to concentrate, following in breath from the beginning to the end. The third one is to be aware of your body. People tend to have disharmony of body and mind where our body is present at that particular place while our mind is wandering. Practicing mindfulness teaches us to be aware of our body sensations and creates harmony between our body and mind.

The next step is releasing tension. Over time, our body accumulated tension and stress, together with our mind which does not help ease the situation. Practicing total relaxation while sitting down helps release tension. Take a few minutes while driving and waiting for the green light, to breathe properly and release the tension and stress. Lastly, mindful walking. Enjoying every step while walking could help to keep our body and mind intact. Indirectly, you are in the present moment and focus on your breathing.

All in all, you could make a small effort in being mindful by putting your focus and awareness into the normal daily routine of your life. For instance, mindful eating trains you to focus on the texture, smell, and taste of the food as you are only focussing on the food. The key takeaway of mindful eating is to only focus on the food and not watch TV shows or scroll on social media while eating.

2.1 Benefits of Mindfulness

Accordingly, mindfulness practices may increase gray matter density in the hippocampus, resulting in improved fact retention and more aware conduct. While the amygdala responsible for triggering human stress response becomes less active when that person is practicing mindfulness, the overall stress level is reduced [28, 29].

Furthermore, mindfulness practices consist of deep breathing and relaxation, stimulating the parasympathetic nervous system. This parasympathetic nervous system signals the brain to convince it is unnecessary to utilize the fight, flight, or freeze response. Also, it causes heart rate, blood pressure, and respiration to slow down, allowing the body to perform reparative and restorative activities. Practicing mindfulness gives more oxygen to the thinking brain, allowing us to focus on the present moment and be less inclined to worry or replay an unpleasant idea or experience. In a review of mindfulness practices, psychologists discovered that those who practice mindfulness are less likely to react to stressful events with negative thoughts or harmful emotions [30].

Mindfulness has been shown in numerous research to alleviate stress. Participants who received mindfulness-based stress reduction had lower levels of stress, anxiety, and depression. The Functioning Magnetic Resonance Imaging (fMRI) data revealed that the participants had less brain reactivity and their neural responses were significantly different after mindfulness training. These findings suggest that mindfulness enhances people's ability to use emotion control strategies, allowing them to selectively feel emotion. The emotions they experience are processed differently in the brain [31].

Duprey et al. [32] examined the mediating role of mindfulness on stressful life events, and the results indicated that mindfulness helps people cope with life and improve their mental health. Janssen et al. [33] conducted a systematic study investigating the impact of Mindfulness-Based Stress Reduction (MBSR) on employees' mental health, resulting in MBSR helping to improve employees' mental health and psychological functioning. A thorough examination of employees' psychological functioning may be improved as emotional tiredness, stress, depression, anxiety, occupational stress, and sleep disturbance were all shown to be reduced.

Instead of using avoidance coping, mindful people apply coping self-efficacy where they can handle challenging circumstances by responding effectively to stressful situations. Mindfulness activates the "being" mode of thought, which is associated with calmness. The human "doing" frame of thought is linked to action and the stress response. Also, mindful people are in present-moment awareness rather than expecting future events or concentrating on the past. Mindfulness allows people to change their attitude toward stress by switching their thoughts on the negative repercussions of being stressed to tackle stress differently and figure out the ideal option [34], supported by van Reekum et al. [35] that practicing mindfulness improves cognitive function in evaluating and filtering out negative thoughts and stress, which decreases amygdala activation.

2.2 Well-Being and Stress

Well-being is essential to individuals and a measure of their quality of life [36]. Well-being is divided into two. The first one is subjective well-being which is defined as life satisfaction, positive affect, and a lack of negative affect, also referred to as the hedonic approach [37, 38]. On the other hand, psychological well-being includes life domains, called the eudaimonic [38, 39].

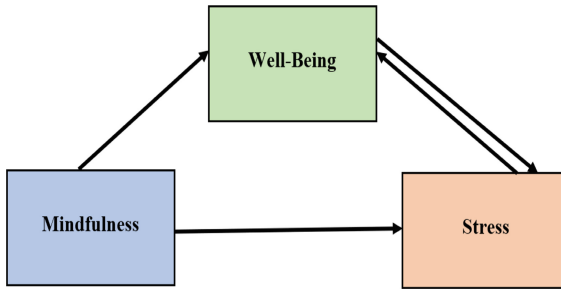


Fig. 1. The relationship between mindfulness, stress, and well-being.

Individuals experience stress, according to Lazarus and Folkman [40] when they perceive those stressful events as ‘exceeding their resources and jeopardizing their well-being’ (p. 19). Past literature looked into the relationship between stress and one’s well-being. Ogwuche et al. [41] proved in their study that stress significantly influences subjective well-being. The 296 students reported results of the one-time survey of reduction in stress due to enhancement of subjective well-being. Dhingra & Dhingra [42] and Malik et al. [43] indicated that perceived stress is associated with one’s psychological well-being. High levels of stress lead to a reduction in one’s psychological well-being. It is proven by past researchers that stress could influence one’s well-being level.

Taking into account that some past studies bridges the positive relationship between mindfulness and well-being, and some scholars focus on reducing stress by applying mindfulness practices, this study contributes to relating well-being, mindfulness, and stress. Thus, this study highlights reducing stress by practicing mindfulness that will uplift subjective and psychological well-being.

Figure 1 shows the framework relating the relationship between mindfulness, stress, and well-being.

3 Conclusion

From past research, mindfulness helps control human minds and effectively brings positive psychological effects, which include increasing subjective well-being. Mindfulness seems effective in helping one cope with various life stressors.

This paper sets out to determine the importance of applying mindfulness practices to reduce stress which eventually could lead to better well-being. It is believed that a person’s stress can be relieved by practicing mindfulness. Reviews of past literature are very promising on willingness to stay in the present moment is associated with reduced stress, anxiety, and depression, improved mood, and a sense of well-being.

Acknowledgments. This research was supported by the Ministry of Higher Education, Malaysia. [FRGS/1/2019/SS01/MMU/01/3].

Authors’ Contributions. The authors devised the main conceptual ideas and proof outline.

References

1. O. Strizhitskaya, M. Petrash, S. Savenysheva, I. Murtazina, and L. Golovey, "Perceived Stress and Psychological Well-Being: The Role Of The Emotional Stability," Feb. 2019, pp. 155–162. doi: <https://doi.org/10.15405/epsbs.2019.02.02.18>.
2. S. Cohen, T. Kamarck, and R. Mermelstein, "A Global Measure of Perceived Stress," 1983.
3. "NIMH » I'm So Stressed Out! Fact Sheet." <https://www.nimh.nih.gov/health/publications/so-stressed-out-fact-sheet> (accessed Sep. 04, 2022).
4. N. Weinstein, K. W. Brown, and R. M. Ryan, "A multi-method examination of the effects of mindfulness on stress attribution, coping, and emotional well-being," *J Res Pers*, vol. 43, no. 3, pp. 374–385 2009, doi: <https://doi.org/10.1016/j.jrp.2008.12.008>.
5. "Do Malaysians handle stress well? | The Star." <https://www.thestar.com.my/lifestyle/family/2021/01/11/do-malaysians-handle-stress-well> (accessed Sep. 04, 2022).
6. S. F. Waters, T. v. West, and W. B. Mendes, "Stress Contagion: Physiological Covariation Between Mothers and Infants," *Psychol Sci*, vol. 25, no. 4, pp. 934–942, 2014, doi: <https://doi.org/10.1177/0956797613518352>.
7. B. K. Hölzel *et al.*, "Stress reduction correlates with structural changes in the amygdala," *Soc Cogn Affect Neurosci*, vol. 5, no. 1, pp. 11–17 2009, doi: <https://doi.org/10.1093/scan/nsp034>.
8. L. A. M. Lebois, C. Hertzog, G. M. Slavich, L. F. Barrett, and L. W. Barsalou, "Establishing the situated features associated with perceived stress," *Acta Psychol (Amst)*, vol. 169, pp. 119–132 2016, doi: <https://doi.org/10.1016/j.actpsy.2016.05.012>.
9. A. Danese and B. S. McEwen, "Adverse childhood experiences, allostasis, allostatic load, and age-related disease," *Physiology and Behavior*, vol. 106, no. 1. pp. 29–39, Apr. 12, 2012. doi: <https://doi.org/10.1016/j.physbeh.2011.08.019>.
10. M. E. Kemeny, "The Psychobiology of Stress Exposure to Stressful," *Association for Psychological Science*, vol. 12, 2003.
11. K. W. Brown and R. M. Ryan, "The Benefits of Being Present: Mindfulness and Its Role in Psychological Well-Being," *Journal of Personality and Social Psychology*, vol. 84, no. 4. American Psychological Association Inc., pp. 822–848, 2003. doi: <https://doi.org/10.1037/0022-3514.84.4.822>.
12. A. F. T. Arnsten, M. A. Raskind, F. B. Taylor, and D. F. Connor, "The effects of stress exposure on prefrontal cortex: Translating basic research into successful treatments for post-traumatic stress disorder," *Neurobiology of Stress*, vol. 1, no. 1. Elsevier Inc, pp. 89–99, 2015. doi: <https://doi.org/10.1016/j.ynstr.2014.10.002>.
13. C. J. Holahan, C. K. Holahan, R. H. Moos, P. L. Brennan, and K. K. Schutte, "Stress generation, avoidance coping, and depressive symptoms: A 10-year model," *J Consult Clin Psychol*, vol. 73, no. 4, pp. 658–666 2005, doi: <https://doi.org/10.1037/0022-006X.73.4.658>.
14. "Why stress causes people to overeat - Harvard Health." <https://www.health.harvard.edu/staying-healthy/why-stress-causes-people-to-overeat> (accessed Sep. 04, 2022).
15. M. T. M. Dijkstra and A. C. Homan, "Engaging in rather than disengaging from stress: Effective coping and perceived control," *Front Psychol*, vol. 7, no. SEP, Sep. 2016, doi: <https://doi.org/10.3389/fpsyg.2016.01415>.

16. A. C. M. Atanes *et al.*, “Mindfulness, perceived stress, and subjective well-being: A correlational study in primary care health professionals,” *BMC Complement Altern Med*, vol. 15, no. 1, Sep. 2015, doi: <https://doi.org/10.1186/s12906-015-0823-0>.
17. R. A. Baer, J. Carmody, and M. Hunsinger, “Weekly Change in Mindfulness and Perceived Stress in a Mindfulness-Based Stress Reduction Program,” *J Clin Psychol*, vol. 68, no. 7, pp. 755–765 2012, doi: <https://doi.org/10.1002/jclp.21865>.
18. S. J. Hepburn, A. Carroll, and L. McCuaig, “The relationship between mindful attention awareness, perceived stress and subjective wellbeing,” *Int J Environ Res Public Health*, vol. 18, no. 23, Dec. 2021, doi: <https://doi.org/10.3390/ijerph182312290>.
19. S. Vasudevan and J. K. Reddy, “The Impact of Trait Mindfulness on Perceived Stress among Adults,” vol. 7, no. 1, 2019, doi: <https://doi.org/10.25215/0701.014>.
20. J. Kabat-Zinn, “Mindfulness-based interventions in context: Past, present, and future,” *Clinical Psychology: Science and Practice*, vol. 10, no. 2, pp. 144–156, 2003. doi: <https://doi.org/10.1093/clipsy/bpg016>.
21. E. Skinner and J. Beers, “Mindfulness and Teachers’ Coping in the Classroom: A Developmental Model of Teacher Stress, Coping, and Everyday Resilience,” 2016, pp. 99–118. doi: https://doi.org/10.1007/978-1-4939-3506-2_7.
22. J. D. Creswell, E. K. Lindsay, D. K. Villalba, and B. Chin, “Mindfulness Training and Physical Health: Mechanisms and Outcomes,” *Psychosomatic Medicine*, vol. 81, no. 3, Lippincott Williams and Wilkins, pp. 224–232, Apr. 01, 2019. doi: <https://doi.org/10.1097/PSY.0000000000000675>.
23. C. Ruini, “Positive Human Health, Positive Mental Health, Resilience and Their Psychosomatic Underpinnings,” in *Positive Psychology in the Clinical Domains*, Springer International Publishing, 2017, pp. 31–62. doi: https://doi.org/10.1007/978-3-319-52112-1_2.
24. M. Bellosta-Batalla, M. del Carmen Blanco-Gandía, M. Rodríguez-Arias, A. Cebolla, J. Pérez-Blasco, and L. Moya-Albiol, “Brief mindfulness session improves mood and increases salivary oxytocin in psychology students,” *Stress and Health*, vol. 36, no. 4, pp. 469–477, Oct. 2020, doi: <https://doi.org/10.1002/smi.2942>.
25. J. Kabat-Zinn, “An Outpatient Program in Behavioral Medicine for Chronic Pain Patients Based on the Practice of Mindfulness Meditation: Theoretical Considerations and Preliminary Results,” 1982.
26. A. K. Singh, “Mindfulness and Happiness among Students: Mediating Role of Perceived Stress,” 2018. [Online]. Available: <https://www.researchgate.net/publication/353934560>
27. B. Thich Nhat Hanh, “Five Steps to Mindfulness”.
28. B. K. Hölzel *et al.*, “Mindfulness practice leads to increases in regional brain gray matter density,” *Psychiatry Res Neuroimaging*, vol. 191, no. 1, pp. 36–43 2011, doi: <https://doi.org/10.1016/j.psychresns.2010.08.006>.
29. E. Luders, A. W. Toga, N. Lepore, and C. Gaser, “The underlying anatomical correlates of long-term meditation: Larger hippocampal and frontal volumes of gray matter,” *Neuroimage*, vol. 45, no. 3, pp. 672–678 2009, doi: <https://doi.org/10.1016/j.neuroimage.2008.12.061>.

30. B. Khoury *et al.*, "Mindfulness-based therapy: A comprehensive meta-analysis," *Clinical Psychology Review*, vol. 33, no. 6. pp. 763–771 2013. doi: <https://doi.org/10.1016/j.cpr.2013.05.005>.
31. N. A. Farb, A. K. Anderson, H. Mayberg, J. Bean, D. McKeon, and Z. v. Segal, "Minding one's emotions: mindfulness training alters the neural expression of sadness," *Emotion*, 2010, doi: <https://doi.org/10.1037/a0017151.supp>.
32. E. B. Duprey, L. G. McKee, C. W. O'Neal, and S. B. Algoe, "Stressful life events and internalizing symptoms in emerging adults: The roles of mindfulness and gratitude," *Ment Health Prev*, vol. 12, pp. 1–9 2018, doi: <https://doi.org/10.1016/j.mhp.2018.08.003>.
33. M. Janssen, Y. Heerkens, W. Kuijjer, B. van der Heijden, and J. Engels, "Effects of mindfulness-based stress reduction on employees' mental health: A systematic review," *PLoS ONE*, vol. 13, no. 1. Public Library of Science, Jan. 01, 2018. doi: <https://doi.org/10.1371/journal.pone.0191332>.
34. Shamash. Alidina, "The Mindful Way through Stress : the Proven 8-Week Path to Health, Happiness, and Well-Being.," p. 338.
35. C. M. van Reekum *et al.*, "Individual differences in amygdala and ventromedial prefrontal cortex activity are associated with evaluation speed and psychological well-being," *J Cogn Neurosci*, vol. 19, no. 2, pp. 237–248 2007, doi: <https://doi.org/10.1162/jocn.2007.19.2.237>.
36. E. Diener, S. Oishi, and R. E. Lucas, "Personality, Culture, and Subjective Well-being: Emotional and Cognitive Evaluations of Life," *Annual Review of Psychology*, vol. 54. pp. 403–425, 2003. doi: <https://doi.org/10.1146/annurev.psych.54.101601.145056>.
37. E. Diener, "Subjective Well-Being," 1984.
38. A. S. Waterman, "Two Conceptions of Happiness: Contrasts of Personal Expressiveness (Eudaimonia) and Hedonic Enjoyment," *J Pers Soc Psychol*, vol. 64, no. 4, pp. 678–691, 1993, doi: <https://doi.org/10.1037/0022-3514.64.4.678>.
39. C. D. Ryff, C. Lee, and M. Keyes, "The Structure of Psychological Well-Being Revisited," 1995.
40. "Lazarus, R., & Folkman, S. (1984). Stress, Appraisal, and Coping. New York Springer. - References - Scientific Research Publishing." [https://www.scirp.org/\(S\(czeh2tfqyw2orz553k1w0r45\)\)/reference/ReferencesPapers.aspx?ReferenceID=1927117](https://www.scirp.org/(S(czeh2tfqyw2orz553k1w0r45))/reference/ReferencesPapers.aspx?ReferenceID=1927117) (accessed Sep. 04, 2022).
41. C. H. Ogwuche, O. Caleb, and D. Relajo-howell, "Perceived Stress And Social Support As Predictors Of Subjective Well-Being Among University Students In Nigeria," 2020, doi: <https://doi.org/10.35774/pis2020.01>.
42. V. Dhingra and M. Dhingra, "Effect of perceived stress on psychological well-being of health care workers during COVID 19: mediating role of subjective happiness," 2020.
43. M. Malik, N. Saidin, R. Abd Wab, and N. Nordin, "Investigating the Relationship Between Stress and Psychological Well-Being among Foundation Students of UiTM," *International Journal of Academic Research in Business and Social Sciences*, vol. 10, no. 14, Jun. 2020, doi: <https://doi.org/10.6007/ijarbss/v10-i14/7366>.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

