

Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 **DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621**

Emotional/Social Loneliness and Locus of Control among Emerging Adults

Sneha Rajesh¹, Liyana Rose Jojo², Serah Susan Varghese³, Krupa Dinah Mathews⁴

^{1,2} UG – Bsc.Psychology, Kristu Jyoti College of Management & Technology, Changanassery, Kottayam, Kerala

³PG – Msc.Psychology, Kristu Jyoti College of Management & Technology, Changanassery, Kottayam, Kerala

⁴Assistant Professor, Post Graduate Department of Psychology, Kristu Jyoti College of Management & Technology, Changanassery, Kottayam, Kerala Department Of Psychology, Kristu Jyoti College of Management & Technology, Changanassery, Kottayam, Kerala, 686104

ABSTRACT

Emotional loneliness refers to the absence of an intimate figure or a close emotional attachment with others. It is characterized by feelings of sadness, anxiety, or depression resulting from the perception of not having close, supportive relationships with others. Social loneliness refers to the lack of social interactions and connections with others. Locus of control is how much individuals perceive that they themselves have control over their own actions as opposed to events in life occurring instead because of external forces. The aim of the present study was to examine the relationship between emotional/social loneliness and locus of control among emerging adults. The sample of the study consisted of 50 emerging adults from Kerala, aged 18 to 25. The assessment tools employed were Emotional/Social Loneliness Inventory (ESLI) and Internal Control Index (ICI). The collected data were statistically analyzed using SPSS. Spearman's correlation test was used to find the relationship between the variables. According to the study, there is no significant relationship between emotional/social loneliness and locus of control among emerging adults.

Keywords - Emotional loneliness, Social loneliness, Locus of control, Emerging adults

Introduction

Emerging adulthood is a stage of development that was first described by psychologist Jeffrey - Arnett. It is between the ages of 18 and 25, though it can also extend into the late 20s and even the early 30s. It is characterized by using a sense of identity exploration instability, self-focus, and a feeling of being in-between youth and adulthood. Emerging adulthood is people who are transitioning from early life to adulthood and they are frequently in the process of doing so.

Emotional loneliness can be felt when you need someone to talk to about something going on in your life but feel that there is no one available to contact. Emotional loneliness can occur even when someone is physically surrounded by others or in a crowded environment. This type of loneliness is different from social loneliness, which involves a lack of social contact and opportunities for interaction. Emotional loneliness, on the other hand, is characterized by feelings of sadness, anxiety, or depression resulting from the perception of not having close, supportive relationships with others. Emotional loneliness can have significant negative effects on mental and physical health, leading to increased stress, depression, and even physical ailments. Addressing emotional loneliness often involves developing and nurturing meaningful relationships, seeking emotional support from friends, family, or mental health professionals, and participating in social activities that align with one's interests and values.

Social loneliness occurs when you don't feel a sense of belonging to a group beyond yourself. Social loneliness, also known as social isolation or relational loneliness, refers to the lack of social



Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 **DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621**

interactions and connections with others. Without the desired degree of contact and participation with friends, family, peers, or community, one feels isolated or detached from their social surroundings. Social loneliness places more emphasis on the quantity and frequency of social contacts than emotional loneliness, which is more concerned with the quality of emotional connections. Even while surrounded by others, social loneliness can exist if the interactions are shallow or don't meet the needs of the person.

Isolation generally refers to the state of being separated, alone, or cut off from others. It might be either a freely or involuntarily occurring physical or psychological occurrence. There are several distinct types of isolation, including: solitary confinement or incarceration, social isolation, physical isolation, emotional isolation, and medical isolation. The impact of isolation on a person's physical and mental health might vary. It occasionally causes feelings of isolation, melancholy, anxiety, and diminished general wellbeing. On the other hand, other individuals could look for times of solitude in order to refuel, contemplate, and find solitude. A reasonable amount of alone can be helpful for personal growth and introspection, whereas excessive seclusion can be harmful to one's mental and emotional well-being.

Locus of Control is an important aspect of personality. Julian Rotter first developed this idea in the 1950s (Rotter, 1966). An individual's perspective of the underlying driving forces behind the events in his or her life is referred to as the locus of control. Locus of control has a big impact on how people see and react to different life events. It may have an effect on their coping mechanisms, motivation, behavior, and decision-making. While those with an external locus of control may be more prone to inactivity and sentiments of resignation when faced with adversity, those with an internal locus of control are more likely to be proactive, set objectives, and persevere in the face of difficulties. Locus of control is a continuum, and depending on the circumstance, people may exhibit a mix of internal and external beliefs. Additionally, a person's locus of control may be impacted by cultural, social, and developmental factors. There are two categories of it: internal locus of control and external locus of control. People who have internal locus of control think they are in charge of their choices and the results they encounter. External locus of control is when people think that outside forces, like luck or fate, have a bigger impact on their life.

Emotional loneliness can be particularly relevant for emerging adults, who are going through a period of significant emotional and psychological development as they transition from adolescence to adulthood. For emotional well-being, intimate relationships that offer support and understanding are crucial. They can better understand themselves and their ideals by forming emotional connections with others. Relationships that are emotionally supportive can serve as a protective barrier against the difficulties that develop throughout this period of life's transition. People experience social loneliness when they feel cut off from their peers or when they find it difficult to establish and sustain fulfilling social connections. A robust social network is crucial for offering emotional, educational, and practical support during trying times. Through networking opportunities and access to social resources, social connections can have a favorable impact on academic and professional performance.

Emerging adults who have a strong internal locus of control are more likely to take the initiative, make objectives, and work toward their ambitions. People who have an internal locus of control typically handle difficulties and disappointments better because they think they can change their circumstances by their actions. The locus of control can affect how decisions are made, affecting decisions about relationships, careers, and education.

Emotional/social loneliness and locus of control have multifaceted significance in the lives of emerging adults. Their impact extends to various aspects of mental health, social development, academic and career pursuits, and overall well-being during this transitional period. Recognizing and addressing loneliness, fostering meaningful relationships, and promoting a healthy sense of personal agency can positively impact their overall life satisfaction and mental health during this critical life stage.



Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 **DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621**

Review of literature Emotional/Social Loneliness

Following are some research findings based on emotional/social loneliness:

Using a large sample of university students, Wolters, Mobach, and Vonk (2023) conducted a study titled "Emotional and Social Loneliness and Their Unique Links with Social Isolation, Depression, and Anxiety" to investigate the connections between self-reported social loneliness, emotional loneliness, social isolation, depression, general anxiety, and social anxiety. The association between social isolation and loneliness types was investigated using hierarchical regression analysis. The network analysis revealed that social isolation best described social loneliness, but social anxiety and sadness best explained emotional loneliness. The results of the regression analysis demonstrated that general and social anxiety, as well as depression, did not act to attenuate the link between social isolation and different forms of loneliness.

According to the De Jong Gierveld Loneliness Scale, 63 long-term care residents with Korsakoff syndrome and their primary carers reported feeling lonely in the study "Social and emotional loneliness in Korsakoff's syndrome" conducted by Oudman, Dam, and Postma (2018). Most KS patients consistently reported feeling lonely on both a social and emotional level. The caregivers gave patients' loneliness an even higher rating. Longer-term clinic patients typically reported less social loneliness, and caregivers noted less emotional loneliness in those patients. Confabulations, a neuropsychiatric symptom unique to KS, and a dearth of social contact both negatively impacted social loneliness as seen by the caretakers.

In a study by Peterson (2018) titled "How Social Identity Influences Social and Emotional Loneliness," participants who were 18 years of age or older and enrolled in college courses were randomly assigned to one of 3 control conditions: the personal identity group, the cognitive control condition, or the no prime condition. After removing those who didn't fulfill the requirements for scoring, 189 of the sample's 207 participants were examined for social loneliness and 190 for emotional loneliness. Results showed that individuals experience less emotional and social distress when compared to other 3 conditions.

Salimi (2011) conducted a study titled "Social-Emotional Loneliness and Life Satisfaction". A sample of 396 university students (172 men and 224 women) were taken. The Demographic Information Form, the Satisfaction with Life Scale, and the short version of the Social and Emotional Loneliness Scale for Adults (SELSA-S) were all utilized. Independent t-test results showed that gender effects students' feelings of emotional loneliness, with male students reporting significantly more emotional loneliness than female students. The results of stepwise regression, loneliness on both a social and emotional level was a significant negative predictor of life satisfaction; however, loneliness on an emotional level was a stronger predictor than loneliness on a social level.

Qualter, Munn, and colleagues in 2002 did a study titled "The Separateness of Social and Emotional Loneliness in Childhood". In a sample of 640 kids aged 4 to 9, three extreme groupings were found. Two of them ('rejected' [N=60] and 'lonely' [N=146]) showed no correlation between social and emotional loneliness. The first group was shunned socially, but they didn't feel alone. Despite not being socially isolated, the second group experienced loneliness. 61 youngsters who felt both rejected and alone made up the third group, "rejected/lonely." The fourth and largest group [N=374] did not feel alone or rejected. The findings suggest that emotional issues co-occur with loneliness rather than rejection.

Locus of Control

Following are some research findings based on locus of control:

The study "Role of Locus of Control and Self-Efficacy in Predicting Academic Procrastination: A Quantitative Analysis" by Madan, Soni, and Soni (2023) examined how students' locus of control and levels of self-efficacy may act as potential predictors of academic procrastination while also examining the relationships between all the variables and identifying any gender differences. 100



Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 **DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621**

students, 50 of whom were male and 50 of whom were female, made up the study's total enrollment. Students' Procrastination Assessment Scale, Rotter's locus of control measure, the general self-efficacy scale, and the procrastination assessment scale were used to collect the data. There were no significant gender differences among the locus of control and self-efficacy predictors of academic procrastination, according to the results.

The level of sustainability consciousness of students in India was examined in the study "Students' Sustainability Consciousness with the Three Dimensions of Sustainability: Does the Locus of Control Play a Role?" by Ovais (2023), and sustainability consciousness was expressed in sustainability knowledge, attitude, and behavior. A quantitative analysis was done on 205 students from higher education institutes in Madhya Pradesh, central India. Smart Partial Least Square (PLS) 3.0 and SPSS 26 were used to analyze the data. Findings indicated that respondents' knowledge of sustainability was greater than their attitudes and behaviors, and that economic concerns can influence behavior.

The purpose of the study "The Role of Locus of Control and Resilience in Student Academic Achievement" by Arsini, Ahman, and Rusmana (2023) was to examine the effects of locus of control, resilience, gender, and talent on student academic accomplishment as well as the relationships among these variables. 550 students were divided into groups according to the focus locus of control both internally and externally. To examine the relationship between locus of control characteristics, resiliency, gender, IQ, and student academic achievement, factorial design analysis was employed as the research method. The association between these variables was determined using ANOVA. Findings suggest that internal locus pupils outperformed external locus students in terms of academic resilience and accomplishment.

In their study titled "Moderating Roles of Grit and Locus of Control on Rumination and Suicidality" published in 2023, O'Connell, Law, and colleagues investigate the moderating effects of grit and locus of control on the effects of depressed and anger-related rumination on suicidality. A battery of self-report questionnaires evaluating suicidal history (a history of suicide ideation, a history of suicidal attempts, or neither) and depressed rumination, angry rumination, grit, and locus of control were completed by participants (N = 322). Hierarchical multinomial logistic regression in R showed that the proposed factors are more independently informative in differentiating people with a history of suicidal thoughts, suicide attempts, or neither, as opposed to working together.

Garcia, & Perali, in 2023 conducted a study "The association between marital locus of control and breakup intentions." It employs a list experiment employing the count-item technique to get accurate responses regarding prior intentions for couple breakup at the individual level from a sample of real-world couples. 44% of our sample has at some point in the past thought about ending their relationship with their current partner. Males, low-income earners, those with university degrees, couples without children, and those who score poorly on marital locus of control all had higher rates of separation intention.

Objectives

The objectives of the present study are the following:

- 1. To assess the relationship between emotional/social loneliness and locus of control among emerging adults.
- 2. To assess the relationship between subscales of emotional/social loneliness and locus of control among emerging adults.

Hypothesis

The hypotheses of the present study are the ones given below:

1. There is no significant relationship between emotional/social loneliness and locus of control among emerging adults.



Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 **DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621**

2. There is no significant relationship between subscales of emotional/social loneliness and locus of control among emerging adults.

Method

Participants

The sample consists of 50 emerging adults within the age group 18-25 belonging to various students from Kerala. The sampling technique used for the study is the convenience sampling method.

Measures

1. Emotional/Social Loneliness Inventory (ESLI)

The ESLI is a 15-item instrument designed to measure both loneliness and isolation from social and emotional points of view. The ESLI has four factors: social loneliness (items 1-8, first set of questions), emotional loneliness (items 1-8, second set), social isolation (items 9-15, first set), and emotional isolation (items 9-15, second set).

Administration

The following instructions are given above the questionnaire. "The purpose of this questionnaire is to help you explore what is TRUE in your life versus how you FEEL currently. Please respond to each question by circling the response that best describes you (Usually true = 3, Often true = 2, Sometimes true = 1, Rarely true = 0). Please respond to both categories for each question."

Scoring

Scores for the subscales and total scale are obtained by simply summing the pertinent score items.

Reliability and Validity

The ESLI has good internal consistency, with alphas for the subscales that range from .80 to .86. The ESLI has good known-groups validity, significantly distinguishing between the clinical and non-clinical groups on all four subscales.

2. Internal Control Index (ICI)

The ICI is a 28-item instrument designed to measure locus of control where a person looks for, or expects to obtain, reinforcement. There are two factors contained in the ICI, self-confidence, and autonomous behavior (behavior independent of social pressure).

Administration

The following instructions are given above the questionnaire. "Please read each statement. Where there is a blank, decide what your normal or usual attitude, feeling, or behavior would be: A = Rarely, B = Occasionally, C = Sometimes, D = Frequently E = Usually. Write the letter that describes your usual attitude or behavior in the space provided on the response sheet".

Scoring

Each item is scored on a 5-point scale from A ("rarely") to E ("usually"). The "rarely" response is scored as 5 points on items 1, 2, 4, 6, 8, 11, 14, 17, 19, 22, 23, 24, 26, and 27; for the remainder of the items, the response "usually" is scored as 5 points.

Reliability and Validity

The ICI has very good internal consistency, with alphas of .84 and .85. The ICI has fair concurrent validity, with a low but significant correlation with Mirels' Factor I of the Rotter I-E Scale.

Procedure

The data was collected with the help of google forms. The initial round of data collecting focused on the instruments for emotional/social isolation and locus of control. The samples were taken from emerging adults. In the first section, socio-demographic information like age and gender were just two examples given. The survey's secrecy was also guaranteed to the participants. Each form indicated at the outset that participation was entirely voluntary and that refusal to participate would not result in any negative consequences. After assuring them that the data will only be used for research purposes ensuring their confidentiality, they gave their agreement to participate in the study.



Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 **DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621**

Before the questionnaire was administered, instructions were given. The acquired data was evaluated to derive study-based conclusions.

Statistical Analysis

Using SPSS Version 28, the acquired data were examined. For complex statistical data analysis, many different types of academics use the software application called Statistical Package for Social Science (SPSS). Method for inferential statistics were employed in the current investigation that is., Spearman's correlation. The strength and direction of the relationship between two ranked variables are quantified by Spearman's correlation coefficient.

Results Table 1

Spearman's Correlation Coefficient and p-value of Locus of Control and Emotional/Social

Loneliness among emerging adults

Variables	Correlation	Emotional/ Social loneliness		Emotional Loneliness	Social Isolation	Emotional Isolation
Locus of Control	r-value	102	156	054	082	162
or common	p-value	.478	.382	.708	.569	.257

Table 1 indicates Spearman's Correlation Coefficient and p-value of locus of control and emotional/social loneliness among emerging adults. The corresponding r-value and p-value of locus of control and emotional/social loneliness is -.102 and .478 respectively. Locus of control and social loneliness has a r-value of -.156 and its corresponding p-value is .382. The r-value and its corresponding p-value of locus of control and emotional loneliness is -.054 and .708 respectively. The r-value and the corresponding p-value of locus of control and social isolation is -.082 and .569 respectively. Locus of control and emotional isolation has a r-value of -.162 and its corresponding p-value is .257 respectively.

Discussion

The study's objective was to investigate the connection between emotional/social loneliness and locus of control among emerging adults of the age group 18-25.

From table 1, findings recommend that there is no correlation between emotional/social loneliness and locus of control in emerging adults. The absence of a correlation between emotional/social loneliness and locus of control in emerging adults could be influenced by several factors. The unique traits of the study's sample of emerging adults may be important. It would be difficult to find a significant association between these two factors if the individuals shared identical locus of control views or loneliness levels. Loneliness is a complex concept. Social loneliness is the absence of a supportive social network, whereas emotional loneliness is the absence of close emotional ties. It can be challenging to draw a direct connection between loneliness and a single element like locus of control because different people may feel loneliness in different ways.

Personal history, family ties, attachment patterns, and social support networks may interact with or mitigate the relationship between these variables, causing a lack of direct correlation between loneliness and locus of control. Depending on a person's stage of life, a relationship between emotional and social isolation and locus of control may exist. Other aspects of adulthood transitions, changes in social interactions, and identity development may have a greater impact on loneliness among emerging adults. Both feelings of loneliness and locus of control beliefs can be greatly influenced by cultural and contextual factors. The developing adult study sample itself may be the



Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 **DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621**

cause of the lack of association. There may be variations in the patterns of correlations between emotional/social isolation and locus of control.

Results also indicate that there is no correlation between the subscales of emotional/social loneliness and locus of control. Each of these subscales may be influenced by different factors, and their interaction with locus of control may not follow a straightforward linear relationship because loneliness is a complex emotional experience that encompasses various dimensions such as emotional loneliness, social loneliness, emotional isolation, and social isolation. Numerous outsideof-control causes may have an impact on social isolation. Feelings of social isolation may be more significantly influenced by other factors, such as social support, attachment styles, self-esteem, or social skills. Specific life circumstances, cultural background, or social contexts may have an impact on the link between social loneliness and locus of control. Emotional loneliness alone may not be strongly associated with locus of control, as other aspects of loneliness (such as social loneliness) or other psychological factors may play a more prominent role in shaping one's beliefs about control. While social isolation can have implications for social relationships, it may not be directly related to one's beliefs about control. People vary in their experiences of emotional isolation and beliefs about control. Some individuals may experience emotional isolation without it significantly impacting their perception of control, while others may perceive a stronger connection between the two.

The lack of correlation between the subscales of emotional/social loneliness and locus of control in this particular study does not negate the significance of these constructs independently. Each variable has been extensively studied and shown to have meaningful impacts on various aspects of psychological well-being and functioning.

Implications

The findings of the study suggest that there is no correlation between emotional/social loneliness and locus of control in emerging adults. The independence of emotional/social loneliness and locus of control from one another underlines the complexity of psychological experiences and individual differences. To promote general wellbeing and adaptive functioning, mental health interventions and support services should independently address emotional/social loneliness and locus of control. Individual differences in personal traits and life circumstances may have a greater impact on moulding people's experiences with emotional/social loneliness and locus of control. The association between emotional/social loneliness and locus of control can also be impacted by inadequate participant replies and participant prejudice toward particular alternatives provided in the questionnaire.

Conclusion

The study sought to determine the relationship between emotional/social loneliness and locus of control. From the findings, it can be concluded that there is no correlation between emotional/social loneliness and locus of control, and as well as between the subscales of emotional/social loneliness and locus of control.

Scope for Further Study

Suggestions that can be put forward for further research include the following:

- 1. Conduct longitudinal studies to examine how emotional/social loneliness and locus of control evolve over time.
- 2. Future research should include diverse and representative samples with age, cultural background, and life circumstances.
- 3. Investigate potential mediating and moderating factors that may influence the relationship between these two variables.

@2023, IJETMS | Impact Factor Value: 5.672 | Page 396



Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621

- 4. Conduct intervention studies to explore whether targeted interventions aimed at improving locus of control or reducing emotional/social loneliness can lead to positive changes in both constructs.
- 5. Having robust instruments will enable researchers to better assess the complexity of these constructs.
- 6. Investigate potential biological and neurological correlates of emotional/social loneliness and locus of control.
- 7. Incorporating qualitative research methods with quantitative methods might explore more in the area.
- 8. The study can be conducted in other groups across different districts and states.

References

Alu. (2022). Understanding the effects of social isolation on mental health. School of Public Health. https://publichealth.tulane.edu/blog/effects-of-social-isolation-on-mental-health/.

Bruning, C, K (2023). What is emotional isolation? The Health Board. https://www.thehealth-board.com/what-is-emotional-isolation.htm.

Deaton, E (2022). What Is Emotional Loneliness and Why Does It Occur? The Roots of Loneliness Project. https://www.rootsofloneliness.com/emotional-loneliness.

Degges-White, S (2019). The 3 Types of Loneliness and How to Combat Them. Psychology-Today. https://www.psychologytoday.com/us/blog/lifetime-connections/201907/the-3-types-loneliness-and-how-combat-them.

Emotional isolation - Loneliness NZ. (2018b, September 4). Loneliness NZ. https://loneliness/terms/emotional-isolation.

GoodTherapy Editor Team. (2018). Learn about Emotional and Social Isolation, Treatment for ... https://www.goodtherapy.org/learn-about-therapy/issues/isolation.

Locus of control. (n.d.). Psychology Tutor2u. https://www.tutor2u.net/psychology/reference/locus-of-control.

Loneliness and social isolation linked to serious health conditions. (n.d.). https://www.cdc.gov/aging/publications/features/lonely-older-adults.html.

Smith, M. (2023). Loneliness and social isolation. HelpGuide.org. https://www.helpguide.org/articles/relationships-communication/loneliness-and-social-isolation.htm.

Remya S. "Covid19 and Environment-A Theoretical Review from Higher Education Students Perspective". International Research Journal on Advanced Science Hub, 02, Special Issue ICARD 2020, 2020, 227-230. doi: 10.47392/irjash.2020.124

Moasunep Kichu; Manali Bhattacharya. "Stingless Honey a Sustainable Economy in Nagaland". International Research Journal on Advanced Science Hub, 02, Special Issue ICARD 2020, 2020, 231-235. doi: 10.47392/irjash.2020.125

Shamala B.; T.Rajendra Prasad. "A Study on Welfare Schemes for Migrant Construction Workers in Karnataka". International Research Journal on Advanced Science Hub, 02, Special Issue ICARD 2020, 2020, 261-267. doi: 10.47392/irjash.2020.130

Shazia Begum B A; Punith Cariappa. "Implications of the GST Regime for the Country's Textile Sector". International Research Journal on Advanced Science Hub, 02, Special Issue ICARD 2020, 2020, 281-285. doi: 10.47392/irjash.2020.133

H B Siddaraju; Muninarayanappa M. "GST-Triggered Issues That Confront the Country's Textile Sector". International Research Journal on Advanced Science Hub, 02, Special Issue ICARD 2020, 2020, 286-290. doi: 10.47392/irjash.2020.134

Lovely Jacob A; Tom Cherian. "A Review on the Relevance of Curcuminoids in Corona Pandemic Situation". International Research Journal on Advanced Science Hub, 02, Special Issue ICARD 2020, 2020, 291-297. doi: 10.47392/irjash.2020.135



Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023 DOI:10.46647/ijetms.2023.v07i04.053 ISSN: 2581-4621

Shonahar Ali; Manash Pratim Kashyap. "Analysis of Annual Peak Flood Discharge Data by Log Pearson Type III Distribution of the River Krishnai of Assam". International Research Journal on Advanced Science Hub, 02, Special Issue ICARD 2020, 2020, 298-300. doi: 10.47392/irjash.2020.136

@2023, IJETMS | Impact Factor Value: 5.672 | Page 398