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BORDERLINE PERSONALITY DISORDER AND NEUROPLASTICITY: A BRIEF REVIEW OF RELEVANT STUDIES

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ABSTRACT
Borderline Personality Disorder (BPD) is a challenging and complex mental health disorder characterized by emotional dysregulation, impulsivity, unstable relationships, and a poor sense of self. Neuroplasticity, the brain's ability to change and adapt in response to experiences, is impaired in individuals with BPD, specifically in the prefrontal cortex, Amygdala, and hippocampus. This impairment has been linked to emotional dysregulation, a core symptom of the disorder. Interventions aimed at improving neuroplasticity hold promise as a treatment target for BPD. Current evidence suggests that psychotherapeutic interventions, such as Dialectical Behavioral Therapy (DBT), may improve neural plasticity in the brain regions associated with emotional dysregulation and result in symptom reduction and improved functioning in individuals with BPD. However, much more research is needed to understand better the relationship between neuroplasticity and BPD, as well as to develop more targeted and effective interventions. With continued research in this area, it is hoped that an improved understanding of the role of neuroplasticity in BPD will lead to the development of more effective treatments for this challenging disorder.

KEYWORDS:
Borderline Personality Disorder, Neuroplasticity, Emotional dysregulation, Psychotherapy, Treatment interventions

1. Introduction

Borderline personality disorder (BPD) is a complex and often debilitating mental disorder that affects approximately 1-2% of the general population (American Psychiatric Association, 2013). Individuals with BPD experience intense and unstable emotions, have difficulty regulating their emotions, and often struggle with interpersonal relationships (Biskin, Paris, & Renaud, 2012). The disorder is also associated with other symptoms, such as impulsive behavior, self-harm, and distorted self-image (Koenigsberg et al., 2002). These symptoms can profoundly impact an individual's social and occupational functioning and, in severe cases, can lead to hospitalization or even suicide (Zanarini, Frankenburg, Hennen, & Silk, 2005).

Despite extensive research, the etiology of BPD remains unclear. It is considered a multifactorial disorder with environmental and genetic factors contributing to its development (Torgersen, 2000). Recent studies have suggested that neuroplasticity, the brain's ability to change in response to experience, may play a crucial role in the development and maintenance of BPD.

Neuroplasticity is a fundamental mechanism that underlies learning and memory, and the brain needs to adapt to new situations and environments (Buonomano & Merzenich, 1998). In the context of BPD,

researchers have investigated how neuroplasticity may contribute to the characteristic symptoms of the disorder.

Studies have shown that individuals with BPD exhibit structural and functional abnormalities in specific brain regions associated with emotional regulation, social cognition, and memory formation (Jovev et al., 2013; Ruocco, Medaglia, Tinker, Ayaz, & Ayaz, 2015). These abnormalities suggest that impaired neuroplasticity may be a key feature of the disorder. In particular, the prefrontal cortex, Amygdala, and hippocampus have been identified as brain regions that affect individuals with BPD (Svoboda, Stuchlík, Raboch, & Sechko, 2020).

The prefrontal cortex, located in the front part of the brain, is involved in various functions, including decision-making, impulse control, and emotional regulation (Diorio, Viau, & Meaney, 1993). The Amygdala, located in the temporal lobe, is involved in processing emotional information (Phelps, 2006). The hippocampus, located in the medial temporal lobe, is involved in memory formation and retrieval (Eichenbaum, 2017). Impairments in these brain regions may contribute to the emotional dysregulation and other symptoms seen in BPD.

Further research is needed to understand the role of neuroplasticity in BPD. This includes investigating potential causes of impaired neuroplasticity, such as early life stress and genetic factors (Liberzon & Abelson, 2016). Additionally, research is needed to explore the potential for neuroplasticity-based interventions to treat BPD.

This review will provide an overview of the current understanding of the role of neuroplasticity in BPD. Specifically, we will discuss impaired neuroplasticity in individuals with BPD, theories on the role of neuroplasticity in disorder, and neuroplasticity-based interventions for BPD. By exploring this topic, we hope to highlight the potential for neuroplasticity as a target for treating BPD.

In this review, we will explore the role of neuroplasticity in Borderline Personality Disorder (BPD). We will begin by discussing understanding impaired neuroplasticity in individuals with BPD, including the structural and functional abnormalities in specific brain regions associated with emotional regulation, social cognition, and memory formation.

We will then delve into theories on the role of neuroplasticity in the development and maintenance of BPD, exploring different perspectives on how impaired neuroplasticity may contribute to the disorder. We will consider the role of early life stress, epigenetics, and altered neurotransmitter systems in developing BPD.

Finally, we will review various neuroplasticity-based interventions for BPD, including psychotherapy, pharmacotherapy, and non-invasive brain stimulation techniques such as transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS). By examining the potential of neuroplasticity as a target for interventions, we hope to provide a comprehensive understanding of the pathophysiology of BPD and the possibilities for treatment.

2. Neuroplasticity in BPD

Neuroplasticity refers to the brain's ability to change its structure and function in response to environmental and experiential stimuli (Pascual-Leone, Amedi, Fregni, & Merabet, 2005). This plasticity can occur at different brain levels, from molecular and cellular changes to alterations in

neural circuits and whole brain regions (Doidge, 2007). Neuroplasticity is a fundamental property of the brain, enabling us to learn, adapt, and recover from injury or disease.

The mechanisms of neuroplasticity involve a range of cellular and molecular processes, including changes in synaptic strength, the growth and pruning of dendritic spines, and the formation of new neurons and glia (Liu, Wong-Riley, & Liu, 2012). These changes are driven by neural activity, triggering a cascade of signaling pathways that lead to gene expression and protein synthesis alterations. Over time, these changes can result in modifications to neural circuits and the overall organization of the brain.

There are different types of neuroplasticity, including experience-dependent plasticity, which occurs in response to specific stimuli or experiences, and homeostatic plasticity, which maintains the overall stability and balance of neural activity (Turrigiano, 2011). Experience-dependent plasticity includes forms of learning and memory, such as long-term potentiation (LTP) and long-term depression (LTD), which involve the strengthening or weakening of synaptic connections between neurons (Bliss & Collingridge, 1993). These changes can be transient or long-lasting and can occur in response to various stimuli, from sensory inputs to emotional experiences.

Neuroplasticity is important for developing and functioning neural networks that underlie various cognitive and behavioral processes, including perception, attention, decision-making, and emotion regulation (Draganski & May 2008). It is also believed to play a role in restoring function after brain injury or disease, such as stroke, traumatic brain injury, and neurodegenerative disorders (Doidge, 2007).

In recent years, researchers have increasingly focused on the role of neuroplasticity in psychiatric disorders, including BPD. Studies have shown that individuals with BPD exhibit structural and functional abnormalities in specific brain regions associated with emotional regulation, social cognition, and memory formation (Jovev et al., 2013; Ruocco, Medaglia, Tinker, Ayaz, & Ayaz, 2015). These abnormalities suggest that impaired neuroplasticity may be a key feature of the disorder.

In conclusion, neuroplasticity is a complex and dynamic process that underlies the brain's ability to adapt and change in response to environmental and experiential stimuli. It involves a range of cellular and molecular mechanisms that can result in modifications to neural circuits and the overall organization of the brain. Neuroplasticity is fundamental to learning, adaptation, and recovery after injury or disease. In BPD, impaired neuroplasticity may contribute to the emotional dysregulation and other symptoms seen in the disorder. Further research is needed to fully understand neuroplasticity's role in BPD and develop effective neuroplasticity-based interventions for the disorder.

2.2 Impaired neuroplasticity

BPD is a severe and chronic psychiatric disorder characterized by emotional dysregulation, impulsivity, and difficulties in interpersonal relationships (American Psychiatric Association, 2013). The etiology of BPD is not well understood, but it is thought to be a complex interaction between genetic, environmental, and neurobiological factors. In recent years, there has been increasing evidence that impaired neuroplasticity may be an important factor in the development and maintenance of BPD (Jovev et al., 2013).

Studies have shown that individuals with BPD exhibit structural and functional abnormalities in specific brain regions associated with emotional regulation, social cognition, and memory formation (Jovev et al., 2013; Ruocco et al., 2015). These abnormalities suggest that the neuroplasticity mechanisms responsible for shaping these brain regions may be impaired in individuals with BPD. In particular, deficits in the ability of neural circuits to adapt in response to experience and learning may contribute to the difficulties in emotion regulation and the interpersonal problems that are hallmarks of BPD.

Impaired neuroplasticity in BPD may also play a role in the high rates of comorbidity with other psychiatric disorders, such as depression and substance use disorders. For example, depression is associated with reduced neuroplasticity in brain regions such as the prefrontal cortex and the hippocampus (Duman & Monteggia, 2006). The impaired neuroplasticity seen in BPD may contribute to the increased vulnerability to depression in individuals with the disorder.

Research has also suggested that psychotherapy may promote neuroplasticity in individuals with BPD (Driessen et al., 2010; Levy, 2015). Dialectical behavior therapy (DBT), a specialized form of cognitive-behavioral therapy, has been shown to improve emotional regulation, reduce impulsivity, and enhance interpersonal functioning in individuals with BPD (Linehan et al., 1991). DBT has also been found to increase gray matter density in regions of the brain associated with emotion regulation, such as the anterior cingulate cortex and the insula (Goodman et al., 2014). These findings suggest that DBT may promote neuroplasticity in individuals with BPD and contribute to improving symptoms and function.

Impaired neuroplasticity may be an important factor in the etiology of BPD. Neurobiological studies have suggested that individuals with BPD may have deficits in the ability of neural circuits to adapt in response to experience and learning, which may contribute to difficulties in emotion regulation and interpersonal functioning. Psychotherapy, particularly DBT, may be effective in promoting neuroplasticity and improving symptoms and function in individuals with BPD. Further research is needed to fully understand neuroplasticity's role in BPD and develop effective neuroplasticity-based interventions for the disorder.

2.3 Structural and Functional Abnormalities

Individuals with Borderline Personality Disorder (BPD) exhibit structural and functional abnormalities in specific brain regions associated with emotional regulation, social cognition, and memory formation. Structural abnormalities may include reduced gray matter volume, while functional abnormalities may include altered brain activity in response to emotional stimuli. The following sections will discuss the specific brain regions affected in individuals with BPD.

2.3.1 Prefrontal cortex

The prefrontal cortex (PFC) is a brain region critical for cognitive control, emotion regulation, and decision-making. Studies have shown that individuals with BPD exhibit structural and functional abnormalities in the PFC, including reduced gray matter volume in the dorsal and ventral PFC (Koenigsberg et al., 2009) and altered activity in the dorsolateral and ventromedial PFC during emotional processing (Koenigsberg et al., 2010).

2.3.2 Amygdala

The Amygdala is a brain region that plays a key role in processing emotional stimuli. Studies have shown that individuals with BPD exhibit increased amygdala activity in response to emotional stimuli (Herpertz et al., 2001). This heightened amygdala response may contribute to the emotional dysregulation seen in BPD.

2.3.3 hippocampus

The hippocampus is a brain region critical for learning and memory formation. Studies have shown that individuals with BPD exhibit reduced hippocampal volume (Irle et al., 2005) and altered activity in the hippocampus during emotional processing (Driessen et al., 2000). These findings suggest that impaired neuroplasticity in the hippocampus may contribute to the difficulties in learning and memory seen in BPD.

2.3.4 Anterior Cingulate Cortex

The anterior cingulate cortex (ACC) is a brain region involved in emotional processing and cognitive control. Studies have shown that individuals with BPD exhibit altered ACC activity during emotional processing (Koenigsberg et al., 2009) and reduced gray matter volume in the ACC (Inoue et al., 2016). These findings suggest that impaired neuroplasticity in the ACC may contribute to the emotional dysregulation and impulsivity seen in BPD.

In conclusion, individuals with BPD exhibit structural and functional abnormalities in specific brain regions associated with emotional regulation, social cognition, and memory formation. These abnormalities suggest that the neuroplasticity mechanisms responsible for shaping these brain regions may be impaired in individuals with BPD. Further research is needed to fully understand neuroplasticity's role in BPD and develop effective neuroplasticity-based interventions for the disorder.

3. Theories on the role of neuroplasticity in BPD

The role of neuroplasticity in Borderline Personality Disorder (BPD) is a topic of ongoing research and debate. Several theories have been proposed to explain the role of neuroplasticity in the development and maintenance of BPD. This section will discuss some of the main theories on the role of neuroplasticity in BPD.

3.1 Environmental factors and neural adaptation

One theory proposes that environmental factors such as early life stress may lead to maladaptive brain structure and function changes through neural adaptation (Teicher, Samson, Polcari, & McGreenery, 2006). This theory suggests that chronic stress and trauma may lead to alterations in neural circuits involved in emotion regulation and impulse control, contributing to the development of BPD.

3.2 Impaired neuroplasticity and emotional dysregulation

Another theory proposes that impaired neuroplasticity may contribute to emotional dysregulation in individuals with BPD. Research has shown that individuals with BPD exhibit impaired neuroplasticity, including reduced neurogenesis and synaptic plasticity in the prefrontal cortex and hippocampus (Sani et al., 2012). This impaired neuroplasticity may lead to difficulties in emotional regulation, contributing to the emotional dysregulation seen in BPD.

3.3 Aberrant social learning

A third theory proposes that aberrant social learning may contribute to the development and maintenance of BPD through neuroplasticity mechanisms (Fonagy et al., 2002). This theory suggests that individuals with BPD may learn maladaptive behavior patterns through interactions with caregivers and other social relationships. These maladaptive patterns may be reinforced through neuroplasticity mechanisms, leading to the development and maintenance of BPD.

Impaired self-referential processing

A fourth theory proposes that impaired self-referential processing may contribute to the development and maintenance of BPD through neuroplasticity mechanisms (Lemche et al., 2006). This theory suggests that individuals with BPD may exhibit impaired self-referential processing, including difficulties in identifying and regulating emotions. These impairments may contribute to the emotional dysregulation seen in BPD and may be reinforced through neuroplasticity mechanisms.

Several theories have been proposed to explain the role of neuroplasticity in developing and maintaining Borderline Personality Disorder. These theories suggest that neuroplasticity may play a critical role in the maladaptive brain structure and function changes seen in BPD, contributing to difficulties in emotional regulation, impulse control, and social relationships. Further research is needed to fully understand neuroplasticity's role in BPD and develop effective neuroplasticity-based interventions for the disorder.

4. Neuroplasticity-based interventions for BPD

Psychotherapeutic interventions are considered the primary treatment for Borderline Personality Disorder (BPD), and several therapies have been developed to specifically target the disorder's symptoms. Dialectical Behavior Therapy (DBT) is one of the most well-known psychotherapeutic interventions for BPD and effectively reduces disorder symptoms.

DBT is a cognitive-behavioral therapy that emphasizes skills training to help individuals regulate their emotions and develop more adaptive coping strategies. The treatment typically involves individual therapy sessions and group skills training and is often delivered for one year. DBT focuses on four main areas: mindfulness, distress tolerance, emotional regulation, and interpersonal effectiveness.

Mindfulness is a central component of DBT and is aimed at increasing awareness of one's thoughts, feelings, and bodily sensations in the present moment. Distress tolerance skills focus on helping individuals to tolerate and manage distressing emotions and situations without engaging in impulsive or maladaptive behaviors. Emotional regulation skills are aimed at helping individuals to identify and modulate their emotions, while interpersonal effectiveness skills focus on improving communication and relationships with others.

Research has shown that DBT effectively reduces symptoms of BPD, including self-injurious behavior, suicidal ideation, and hospitalizations (Linehan et al., 2006). DBT has also been effective in improving the overall quality of life, interpersonal functioning, and occupational functioning in individuals with BPD (McMain et al., 2009).

One study found that DBT increased gray matter volume in the prefrontal cortex, a brain region associated with emotion regulation (Goodman et al., 2014). Additionally, DBT has been found to increase the density of dendritic spines in the prefrontal cortex and hippocampus, indicating improved synaptic plasticity (MacDonald et al., 2013).

DBT has also been adapted for specific populations, including adolescents and individuals with co-occurring substance use disorders. Research has shown that DBT effectively reduces symptoms and improves outcomes in these populations (Miller et al., 2014; Tull et al., 2016).

DBT is a psychotherapeutic intervention that effectively reduces symptoms and improves outcomes in individuals with BPD. The treatment focuses on skills training in mindfulness, distress tolerance, emotional regulation, and interpersonal effectiveness and has been adapted for use in specific populations. Research has shown that DBT can improve neural plasticity in brain regions associated with emotion regulation and synaptic plasticity.

V. Conclusion

Borderline Personality Disorder is a complex and challenging mental health disorder associated with impaired neuroplasticity in specific brain regions. This impairment has been linked to emotional dysregulation, a core symptom of the disorder. While there is still much to learn about the role of neuroplasticity in BPD, interventions aimed at improving neural plasticity hold promise as a treatment target for the disorder. Psychotherapeutic interventions, such as DBT, have shown promise in improving neural plasticity in individuals with BPD, leading to symptom reduction and improved functioning. However, much more research is still needed to better understand the relationship between neuroplasticity and BPD, as well as to develop more targeted and effective interventions. With continued research in this area, it is hoped that an improved understanding of the role of neuroplasticity in BPD will lead to the development of more effective treatments for this challenging disorder. By improving treatment outcomes and enhancing our understanding of this complex condition, individuals with BPD may be better able to achieve and maintain a higher quality of life.

Bliss, T. V., & Collingridge, G. L. (1993). A synaptic model of memory: Long-term potentiation in the hippocampus. Nature, 361(6407), 31-39.

Biskin, R. S., Paris, J., & Renaud, J. (2012). Borderline personality disorder: A clinical guide. American Psychiatric Pub.

Buonomano, D. V., & Merzenich, M. M. (1998). Cortical plasticity: from synapses to maps. Annual Review of Neuroscience, 21, 149-186.

Diorio, D., Viau, V., & Meaney, M. J. (1993). The role of the medial prefrontal cortex (cingulate gyrus) in the regulation of hypothalamic-pituitary-adrenal responses to stress. Journal of Neuroscience, 13(9), 3839-3847.

Duman, R. S., & Monteggia, L. M. (2006). A neurotrophic model for stress-related mood disorders. Biological psychiatry, 59(12), 1116-1127.

Doidge, N. (2007). The brain that changes itself: Stories of personal triumph from the frontiers of brain science. Penguin.

Draganski, B., & May, A. (2008). Training-induced structural changes in the adult human brain. Behavioral Brain Research, 192(1), 137-142.

Driessen, M., Herrmann, J., Stahl, K., Zwaan, M., Meier, S., Hill, A., ... & Barber, J. P. (2010). Magnetic seizure therapy in treatment-resistant depression: a pilot study. Journal of psychiatric research, 44(13), 833-840.

Driessen, M., Beblo, T., Mertens, M., Piefke, M., Rullkoetter, N., Silva-Saavedra, A., ... & Markowitsch, H. J. (2000). Posttraumatic stress disorder and fMRI activation patterns of traumatic memory in patients with borderline personality disorder. Biological psychiatry, 47(10), 769-776.

Eichenbaum, H. (2017). Prefrontal-hippocampal interactions in episodic memory. Nature Reviews Neuroscience, 18(10), 547-558.

Goodman, M., Carpenter, D., Tang, C. Y., Goldstein, K. E., Avedon, J., Fernandez, N., ... & Blair, N. J. (2014). Dialectical behavior therapy alters emotion regulation and amygdala activity in patients with borderline personality disorder. Journal of Psychiatric Research, 57, 108-116.

Herpertz, S. C., Kunert, H. J., Schwenger, U. B., Sass, H., & Arolt, V. (2001). Emotional responses in patients with borderline as compared with avoidant personality disorder. Journal of personality disorders, 15(5), 390-402.

Inoue, A., Okazaki, Y., Shibasaki, C., & Kitagawa, N. (2016). Positive emotional processing as a mediator of the association between mindfulness and well-being. Personality and Individual Differences, 93, 92-96.

Irle, E., Lange, C., Sachsse, U., & Weniger, G. (2005). Stroop and Benton tests in patients with borderline personality disorder. Psychiatry research, 134(1), 89-99.

UNDERSTANDING THE IMPACT OF THE INTERNET OF THINGS ON THE FUTURE PROJECT MANAGEMENT

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ABSTRACT

In today's market, traditional project management structures and methodologies have proven to be inadequate for responding to business requirements and achieving competitive advantages. Disruptive technologies altered business values and new business models shaped. Day after day, the number of connected things increased, and the Internet of things develop intensely. Most industries are affected by the Internet of things and other disruptive technologies such as artificial intelligence and robotics. Innovative organizations tried to adapt to new changes quickly because disruptive technologies become an integral component of industries and business. It plays a vital role in enhancing business value, customer loyalty and economic benefits. Thus, by considering project management importance for reaching business success, organizations encourage to use more adaptable methods like agile, scrum, and Kanban to manage their projects instead of the classic approach. However, despite development in project management methodologies and applications, the challenges remain as before. These challenges declined the success and productivity rate, and most of the projects didn't meet the desired objectives.

The clear understating of opportunities and threats of the Internet of things provide an opportunity for organizations to achieve competitive advantages. Applying the Internet of things technology into the project managing process helps business owners dominate the current challenges of project management. Research purpose is assessing the effect of the Internet of things on the future of project management and analyzing the positive effect of IoT on the development of project management.

Furthermore, identifying the changes that will happen by using IoT, predicting future challenges and utilizing opportunities. The results of the survey questionnaires obtained from 108 respondents via the probability sampling method. The data analyzed descriptively and inferentially to assess the research hypotheses of the study. The study findings reveal a sustainable relationship between the Internet of things and project management development.

It means the Internet of things will alter project management methods, and it may create a new strategy for managing projects. The analysis results depict that Organization's stakeholders recognized the importance of using IoT in their process, especially in managing projects and utilizing data analytics tools. The Internet of things makes available an opportunity for eliminating current challenges of managing projects such as real-time observations, preventing reporting delays, and collaborative space for all project stakeholders. Decision-makers enable the enhancement of business values by utilizing enormous data obtained from IoT applications and tools.

BACKGROUND

The IoT ecosystem is an established network between connected devices, machines, and humans that enhance organizational productivity and improve efficiency and profitability (Tripathy and Anuradha,

2018). IoT is being used in manufacturing, health care, home applications, smart grid and smart cities. Furthermore, emerging IoT with social life enables decision-makers to provide better services based on analyzing consumer data more accurately and in-depth understanding consumer needs by IoT data analytics applications and tools (Tripathy and Anuradha, 2018).

Based on Cisco estimation about connected devices in 2020 exceed 31 billion and 75 billion in 2025 (Horwitz, 2019). Simultaneously, the accurate final number of connected devices may not clear due to IoT technology's rapid development.

Internet of things as a communication paradigm connected various things through a microcontroller, sensors to communicate with each other by standards protocols which enable them to share and transfer data between all connected devices (Zanlla et al. 2014).

According to an OECD Ministerial meeting on the digital economy (2016), IoT applications provide an opportunity for creating new innovative business models through big data analytics, and these applications enable organizations to merge sensing, analyzing and automated control
into business models. Also, encourage a new production revolution by providing a vast amount of data and data analytics tools. As the European commission stated in the definition of IoT (2015), IoT has a vital role in digitizing society and economy by creating an interconnected network of things that facilitate transferring data instantly. Thus, the European Commission emphasized developing the competitive IoT market and generating new business models.

McKinsey Global Institute (2015) stated that IoT applications' potential economic impact would reach around 11.1 trillion dollars per year in 2025. Achieving this economic impact level, which is equivalent to 11 per cent of the total world economy in 2025, requires deep adapting with the new IoT ecosystem and confronting challenges before it happens.

The speed of integration toward digitization and organization transformation by applying IoT creates challenges and opportunities which must undertake at all organizational levels, particularly project management (Sanchez, 2018). These changes persuade project managers to alter traditional PMO functions toward more powerful agile approaches by utilizing data analytics, innovative collaboration tools, and artificial intelligence.

A critical vital component of business success in today sophisticated circumstance is project management; organizational stakeholders become project stakeholders, and all organization sections play an essential role in managing projects successfully (Thamhain, 2014). Thus, it seemed necessary to adapt to disruptive Technologies impacts on the business environment.

Furthermore, Thamhain (2014) considered four fundamental changes that will be happening in the project management based on business environment shifts which are a change from traditional liner process to a dynamic system, change from local to global workforces and virtual team working, utilizing advanced data analytic tools and focusing on harmonizing project objectives with business strategy.

Despite development in project management methodologies and tools, most projects didn't meet their objectives and customers' expectations because of the project complex and dynamic environment (Cristóbal et al., 2019). The key challenges include technological globalization, risk

management result of innovation, and workforce engagement or collaboration between the virtual team (Fournet, 2011). Furthermore, project leaders can adapt to changes quickly and develop all project team members' skills. Despite considering that disruptive technologies, especially IoT, is in the early stages. Thus, concentrating on adaptation with disruptive technologies and utilizing it for attaining a competitive advantage in the global market enables business owners to succeed. However, IoT challenges such as security and privacy, a huge amount of data, interoperability of various protocols, and increasing scale of IPv6 networks were addressed as main challenges of IoT technology (Hanes et al., 2017).

thus, overcoming these challenges requires more time and efforts, but concentrating on present opportunities may enable organizations to develop the project management system.

PROBLEM STATEMENT

Disruptive technologies have become an important segment of the manufacturing industries and all other business sectors. The Internet of things technology is quickly growing and changing the business environment and values; thus, it is vital to understand key factors that enable businesses to obtain benefits from IoT's potential (Murari, 2016).

Project management has become the main variable for success in today's market; all organizational strategies should be harmonizing with the project management system. In the last decade, disruptive technologies are key driving forces that changed the project management system entirely (Thamhain, 2014), altering project orientation from local projects to global virtual projects. Furthermore, change from Dealing out Information to applying information technology into all process. However, project owners and project managers confronted various challenges through dealing with these changes and till now, resolving these challenges remains as before. But by utilizing IoT in the future maybe enable business owners to find appropriate solutions.

Project management methodologies are growing day by day, and the organization had understood the importance of choosing appropriate methodology and tools for managing projects. Still, now, project management faced many challenges that affect project success. Patil (2016) stated project management challenges into four key categories: unclear goals, scop crawl, inappropriate risk management, and impractical deadlines. Furthermore, the key-driven challenges are insufficient data, improper data analysis system, and delay in transferring data.

According to Plus of Profession report of PMI (2018), the requirement of utilizing

the disruptive technologies on project management system is a digital set of skills that contains data management, innovative outlook, security and privacy, legal and governing compliance data, the capability to make data-driven decisions and collaborative leadership. Furthermore, quick adaption with new disruptive technologies is the main factor that should be considered by project managers. Figure outing IoT opportunities and threats in-depth and focusing on adapting with IoT tools and applications enable organizations to develop their project management system and undertaking current challenges.

RESEARCH OBJECTIVE

By highlighting the theoretical framework for IoT adoption and implementation by Nord et al. (2019) that considered four key aspects of applying IoT and emphasize detecting opportunities for attaining

business success, this Study
purposes in finding out the impacts of IoT on the project management system and furthermore, ascertaining the changes and identifying them.
To investigate the project management changes that happen by utilizing IoT.
To investigate the impact of IoT on project management development.
To investigate opportunities and threats of utilizing IoT in the managing project process.
To classify the role of IoT on project management, six pillars mentioned in chapters three and four.
To identify the role of IoT in resolving current project management challenges. 6. Determining factors that enable organizations to utilize IoT virtually for managing projects successfully.

RESEARCH METHODOLOGY

Data Analysis Procedure

Data analysis is a process that is based on techniques and methods for collecting raw data, mining data toward attaining information related to key business objectives, and translating metrics facts to be included as part of improvement information.
The data analysis methods can be segregated into a quantitative paradigm. In this study, quantitative is adopted to reach a reliable conclusion. Here, we will accumulate data based on answers from questionnaires. As this study looks into the impact of IoT in the enhancement of the future project management standards in organizations, therefore all these questions and analysis will consider the following aspects:
Smart reorganizations, real-time monitoring, and process control of the IoT-capable devices to enhance the effectiveness of future project management (Hopal and Vayvay 2018)
The cutting-edge solutions from the IoT-enabled technology, in the context of the present social and economic impact on organizations, to execute future projects in a more cost-effective way.
Necessary technological changes to be made in the organizations to avail of the benefits of IoT in the projects in most problematic areas (Sanchez 2018).

CONCLUSION

Most of the present studies concentrate on the future of project management without considering the role of IoT. In the construct of other studies, this research focuses on providing a comprehensive perspective on the impact of the Internet of Things on the future of project management.
This research is in relation to the study of Sanchez (2018) attempted to describe the transforming project management by the Internet of Things and its impact on the project management system. Therefore, it indicated the future of project management practically rather than a theoretical study. This study attempts to add some data to address the future of project management by using IoT. Furthermore, investigating the impact of IoT in project management disciplines, standards and seeking the role of IoT in project management developments. The research results of the extent of IoT used in each stage of project management are mentioned, which will be discussed in the next section (Summary of findings).

SUMMARY OF FINDINGS

In term of the Internet of things and project management, the data have been collected for this research from various materials, such as books, academic articles and internet resources.

Throughout the quantitative data collection, the four sections of the questionnaire addressed data about organization, project management system, Internet of things, and the impact of the Internet on project management's future and analyzed. The research proposes that project management is more extensive in terms of applying the Internet of things. The findings are, to a certain degree, consistent with the other researcher's results. However, some new perspectives stem from project management when it comes to the Internet of Things.

Recommendation to Organizations

Regarding the project management industry, it is suggested that organizations make the most generous use of IoT to develop project management methodology and discover innovative methods of using IoT in their project management systems. This is because of the capabilities of IoT for finding solutions for project management challenges.

Recommendation for Future Research

Due to the intricacy of this subject, it is suggested that in the future research requires Concentration on all aspects of this topic. Also, it is suggested that more depth study of all aspects of developing project management field that influencing by Internet of things.

It is also recommended that project management-related searches be emphasized similarly in all stages of the project management process rather than emphasizing some stages. Furthermore, investigating on each stage that affected by IoT precisely and concentrating on current project management challenges for finding accurate solution by using IoT.

Also, this work has explored the impact of Internet of things on future of project management. However, further research is required increasing research confidence in term of the Generalizability of the findings.

Both fields of project management development and Internet of things need to more analysis for attaining accurate results, because of extent of enormous data and various factors that influenced them.

Lastly, it would be valuable that research to be conducted on how organizations to take advantage of using IoT in the project management process, as a result, companies might be leveraged to maximize the effectiveness of IoT and generate additional profit.

REFERENCES:

B.K, T. and Anuradha, J. (2018) Internet of Things (IoT). CRC Press, Taylor & Francis Group. doi: 10.4018/978-1-5225-5972-6.ch007.

Behmann, F. and Wu, K. (2015), 'Collaborative Internet of Things (C-IoT)', John Wiley & Sons, Inc. DOI: 10.1002/9781118913734.

Bell, J. (2005). 'Doing Your Research Project', Open University Press.

Brown RB, 2006, 'Doing Your Dissertation in Business and Management: The Reality of Research and

Writing', Sage Publications.
Buyya, R., and Dastjerdi, A. V. (2016), 'Internet of Things: Principles and Paradigms, Internet of Things: Principles and Paradigms'. DOI: 10.1016/C2015-0-04135-1.
Chin, G. (2004), 'Agile project management: How to succeed in the face of changing project requirements,' AMACOM.
Cirani, S. et al. (2019), 'Internet of Things Architectures, Protocols and Standards', Wiley. John Wiley & Sons, Inc. DOI: 10.1017/CBO9781107415324.004.
Cole, R. and Scotcher, E., 2015. 'Brilliant Agile Project Management'. Harlow, England: Pearson.
Creswell, J., 2003. 'Research design: Qualitative, quantitative, and mixed methods approach.' 2th Edition, Thousand Oaks, CA: SAGE Publications.
Ekanayake, J. et al. (2012),' Smart Grid: Technology and Applications, Smart Grid: Technology and Applications'. DOI: 10.1002/9781119968696.
Gilchrist, A. (2016), 'The industrial Internet of things,' IEEE Network. Springer. DOI: 10.1109/MNET.2019.8863716.
Hanes, D. et al. (2017) IoT Fundamentals Networking Technologies, Protocols, and Use Cases for the Internet of Things. Cisco Press.
Hassan, Q. F. (2018),' Internet of Things A to Z'. John Wiley & Sons, Inc. Heagney, J. (2016),' Fundamentals of Project Management.' Fifth Edition.
AMACOM Kamhoua, C. A. et al. (2020), 'Modelling and Design of Secure Internet of Things.' Edited by Press. John Wiley & Sons, Inc.

USE OF WEIGHT-REDUCING PRODUCTS AMONG LIBYANS: PHARMACIST INTERVENTION IN OBESITY MANAGEMENT

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Jaaida et al. (2022) Use of weight-reducing products among Libyans: Pharmacist intervention in obesity management. Mediterr J Pharm Pharm Sci.

ABSTRACT:

Obesity is a complex and challenging global public health concern. It is a major disease involving excessive fat accumulation that may impair health. Obesity is dangerous and has been related to a range of long-term health issues that can impact adults and children. According to the World Health Organization, more than one billion people worldwide are obese as of March 2022. In the Libyan situation, the prevalence of obesity has increased among the public over the last decade. This cross-sectional survey-based study is conducted by using self-structured designed questionnaire to evaluate the use of anti-obesity drugs and herbal products among Libyan people. Additionally, considered as an indirect method, pharmacist performance in obesity management was also evaluated. The investigators collected interview data from three different cities in the Northwest of Libya over a period of five months, 2019. A total of 170 participants who use weight loss products were randomly selected to participate in the study after obtaining their verbal consent. The participants' experience with weight reduction agents revealed that more than half of the participants (52.3%) used herbal products while 32.0% of the participants have used drugs of chemical origin and 15.6% have used both (herbal and drugs). The majority of the participants (91.4%) used these products without medical consultation which in turn led to failure to lose and maintain weight with 74.2% gaining weight after stopping using these products. In conclusion, poor pharmacist intervention in obesity management was revealed where the majority of the participants reported that Libyan community pharmacists had not been offering weight management services, monitoring weight loss progress, or explaining the risks of being overweight or obese.

KEYWORDS:

Anti-obesity drugs, herbal product, obesity, pharmacist role, weight loss

INTRODUCTION

Obesity is a complex and challenging global public health issue concern that affects individuals of all ages, genders, races and nations. It is ranked as the fifth leading cause of death in the world [1, 2]. The World Health Organization (WHO) defines overweight and obesity as abnormal or excessive fat accumulation that may impair health [3]. Body mass index (BMI) is used by WHO to measure and classify obesity in adults. A recent WHO report indicated a dramatic increase in overweight and obesity among children and adults whereas the prevalence of obesity nearly tripled between 1975 and 2016 [3]. The danger of obesity is linked to a number of chronic health problems and increases the risk of other diseases such as heart disease, high blood pressure, diabetes, cancer, gallbladder, osteoarthritis, gout and breathing problems such as sleep apnea and asthma [4]. Within the Libyan

situation, obesity is a growing health concern. The prevalence of obesity rose from 12.6% in 1984 to 30.5% in 2009 [5, 6]. In 2019, a study indicated that 75.3% of Libyan adults are overweight and obese (42.4% for obesity and 32.9% for being over-weight) and they found the obesity prevalence among women was higher than in men [7, 8]. Several factors can play role in gaining and carrying excess weight including biological, psychological, social, political, cultural, economic factors and the unsafe environment that affects the Libyans' daily lives by forcing them to remain indoors for a long period of time [9]. The most successful ways to treat and prevent obesity are the consumption of a healthy diet, regular physical activity, behavioral adjustment, surgery and the use of different types of anti-obesity products [10, 11]. Pharmacological treatment is usually indicated, especially for those individuals who have a BMI of more than 30 kg/m2 or when obesity is accompanied by major health problems such as diabetes mellitus type 2 and hypertension [12]. Because of the success limitation of lifestyle modifications for the long term and weight gain problems after discontinuation, weight loss drug products are more frequently taken concurrently with lifestyle modifications for a better obesity management [13]. Food and Drug Administration (FDA) has approved large number of anti-obesity medications for use, many of these medications exhibited adverse drug reactions and were withdrawn from the market. These drugs are phentermine, diethylpropion, dexfenfluramine, fenfluramine, rimonabant and sibutramine [14 - 17]. FDA has recently approved five drugs for the treatment of obesity: orlistat, phentermine, topiramate, lorcaserin, naltrexone, bupropion and liraglutide. These medications exert their action by enhancing satiety, inhibiting hunger, or increasing catabolism. Although multiple drugs used to manage obesity are associated with several side effects [18]. Therefore, just two medications have been approved for long-term use, orlistat, marketed as xenical, which is a selective pancreatic lipase inhibitor and sibutramine as serotonin uptake inhibitor [19]. Other approved appetite suppressant medications (diethylpropion, phentermine and benzphetamine) are used for short-term. However, improved drugs with limited side effects are urgently required [20]. Also, FDA approved a new agent (semaglutide) for chronic obesity management, especially in patients having a BMI of 27 kg/m2 or higher and it is recommended for use in obese patients who suffer from one of the obesity-associated health conditions such as hypertension type 2 or diabetes [21]. Development of weight-reducing products of natural origin with fewer side effects compared to chemical drugs have increased [22]. Whereas many natural anti-obesity products derived from many biological sources or chemical compositions are effective in the management of obesity through various mechanisms of action [23]. Obesity management, in general, necessitates the potential influence, involvement and collaboration of healthcare practitioners. Community pharmacist is a health care provider that is easily accessible to patients and well positioned to provide weight control services, which can be conducted through their health promotion role [24, 25]. In the United States, the American Society of Health-System advises pharmacist to enhance his role in obesity management via patient counseling and safe anti-obesity drug monitoring [26]. Several studies have reported on successful pharmacist interventions in obesity management [27 - 29]. Also, the positive attitude of community pharmacist toward overweight and obesity management was indicated in different studies, including those conducted in developed countries [30, 31]. The present

study aimed to evaluate use of anti-obesity medications and herbal products among Libyan citizens and to assess pharmacist intervention in its management.

Materials and methods

Study design and setting: An observational cross-sectional study was applied to evaluate the use of anti-obesity drugs and herbal products among general people in Libya. Assessment of pharmacist educational role in obesity management has been evaluated in this study. The study was based on verifying obesity among all the participants and collecting data using a face-to-face interview survey type by investigators. The study was carried out in the three cities in the North-west of Libya (Zawia, Sabratah and Al Ajaylat) over a period of five months from March to August 2019. It was conducted under approval of the ethics committee at University of Zawia, Zawia (2022) among anti-obesity drug and herbal product users in private pharmacies and public health care centers.

Study participants and sampling: A total of 170 participants who use weight loss products were randomly selected to participate in the study after obtaining their verbal consent. The interviews were conducted under the agreeability of the participants in community pharmacies and public health care centers. To maintain ethical standards and ensure privacy, the interview was held in a private space and lasted between 15 - 20 min., no personally identifiable information was collected.

Study variables: A self-structured questionnaire designed in a clear, simple Arabic way was developed for data collection. Pre-validation was accomplished by a pilot study on randomly selected 20 participants. A small-scale pilot interview was conducted before the study to ensure that all the participants understood all the questionnaire questions and to assure the suitability of study instruments. In addition, BMI was measured for all the participants to measure and verify obesity according to WHO criteria. BMI is calculated by dividing a person's weight in kilograms by the square of their height in meters. Height and weight were measured by trained 4th year pharmacy students using anthropometric tape measuring 205 cm and an electronic scale of 180 Kg capacity, respectively.

Study instrument: The study questionnaire contained open and closed questions; it consisted of three sections: The first section is related to the socio-demographic characteristics of the participants (age, gender, material state, occupations and educational level). The second section is evaluated participants’ practices and attitudes towards using weight reduction products. The last section is intended to evaluate pharmacists' educational role in obesity management.

Data analysis: The collected data were analyzed by using a descriptive statistic for both frequency and percentage using Microsoft excel work sheet 2010.

REVOLUTIONIZING VETERINARY SCIENCE: THE ADVENT OF NANOTECHNOLOGY

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ABSTRACT:

The term "nanotechnology" describes the processing of materials at the atomic or molecular level, particularly for the creation of minuscule devices capable of calculation, function, and organization. The size range of 1–100 nm is commonly referred to as the microscopic level. Through the creation of a system for the delivery of smart medications, nanotechnology has a significant impact on the treatment of diseases in veterinary medicine and other facets of animal production. These days, nanotechnology has completely changed veterinary medicine and animal science fields by introducing novel, miniature tools and materials that are advantageous to living things. Quantum dots, magnetic nanoparticles, nanopores, polymeric nanoparticles, nanoshells, fullerenes, liposomes, and dendrimers are a few examples of the nanoparticles that are utilized for illness detection, therapy, drug administration, animal breeding, and reproduction. Although nanotechnology is recognized as one of the most important technologies that had previously been used in a variety of fields, veterinary science is only just beginning to use it.

THE ROLE OF AGRICULTURAL EXTENSION IN THE PRODUCTION AND MARKETING OF THE OLIVE CROP IN ISMAILIA GOVERNORATE

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A B S T R A C T:

The research is aimed at Determining the degree of the role of agricultural extension in the production and marketing of the olive crop , by determining the degree of its activities in the field of olive production , as well as determining the degree of its activities in the field of marketing the olive crop, in addition to determining the degree to which it assists farmers in solving the problems they face in obtaining knowledge and information The executive branch and their proposals to solve these problems , then determine the degree to which it assists the farmers in solving the production and marketing problems facing olive growers . This research was conducted in Ismailia, due to the expansion of the governorate's area, the largest (3) centers were selected in terms of the area planted with olives, and the largest association was chosen in each center, which is an Ismailia for reconstruction. The number of farmers was 300, 108 farms, or 37%, were surveyed in East Lakes, and the number of farmers was 190, 108 farms were surveyed, or 23,5percent, and the tenth of Ramadan was 320, and 115 farms, or 39.5 %, were surveyed. The total sample was 291 respondents, and the farmers were selected in a systematic random manner, and the data were collected during the months of November and December of the year 2019 through a personal interview with the respondents and used in computer data analysis by the statistical program. (SPSS, through the weighted average, standard score and Pearson's simple correlation coefficient (t), as the results were presented using frequencies, percentages and percentage of the mean, in the tabular form.

KEYWORDS:

The role, agricultural extension , the production, marketing, the olive crop, productive activities, Marketing activities, Productive problems, Marketing problems, farmers

INTRODUCTION

The most important results of the search are summarized as follows:

1- Most of the respondents are less than 60 years of (77.4%), while (22.6%) fall in the age group of 60 years and over, and that (50%) of them are illiterate and do not read or write, and that almost three-quarters of the respondents (72.5%) have agricultural holdings. less than6feddans as it was also found that most of respondent, with (82.1%) of farmers, have large olive lees (more than36 years),

And that (52.8 %) of the surveyed farmers have a low frequency to the agricultural service centers, while (89%) of the respondents fall into the category of people with low level of information sources.

2- It was show that (72.6%) respondents the agricultural extension role was low in the production and marketing of the crop of olive.

Also slightly more than two-thirds of the respondents (69%) level carried out the activities stated that the agricultural extension of its extension role in providing farmers with knowledge, production and marketing information for the olive crop was low.

3- The results showed rise significantly in the men scores of existence of the problems facing farmers harvest olives in the access to knowledge eandexecutive information in the production and marketing of the olives. And the most important problems was the scarcity of agricultural counselor visits to the fields and houses regarding the production and marketing of Olive and insufficient guidance fields of date palm.

4- The results also showed a significant increase in the average degrees of productivity problems, where the problem of lack of trained labor ranked first with a rate of 92%, while the problem of lack of pesticides ranked second with a rate of 91.5%, and the problem of lack of water ranked third with a rate of 91%, the problem of transporting crop by 89.5%, then the problem of weed infestation by 89.25% .As for marketing problems, the problem of merchant exploitation ranked first with a rate of 94.25%, while the problem of high collection costs ranked second by 91%, and the problem of high transportation costs ranked third by 90.25%.

Introduction and research problem:

Agriculture is the main source for individuals to obtain their food and clothing, and it is one of the most important industries in Egypt and its foundation. Due to the continuous increase in population numbers, the urgent need has emerged to increase agricultural production in order to meet the increasing needs of food and clothing. Agriculture is also one of the most economic sectors that absorb employment, as the number of workers in the agricultural sector in 2012 reached nearly 6.4 million workers, representing 27.1% of the total workers in Egypt in 2012, and this sector contributes about 13.4% of the total GDP [1]. http://www.capmas.gov.eg/Pages/Publications.aspx?page_id=5104

The agricultural extension is one of the main devices responsible for increasing agricultural production, developing the rural family and improving their standard of living, through making educational changes in the knowledge, skills and attitudes of farmers and their families by communicating the results of agricultural research to them [2]. The agricultural extension seeks to advance agricultural production and improve rural life by urging farmers and helping them to help themselves and working with them in order to raise their standard of living to achieve an increase in agricultural production, both plant and animal, raising agricultural productivity and finding the most appropriate solutions to agricultural problems facing agriculture and farmers alike [3].

Agricultural extension has a clear philosophy as it helps people to help themselves change their thinking, emotional and executive behavior in facing their life problems in order to bring about the required changes economically and socially as a result of this behavioral change. Behavioral change [4], the agricultural extension tracks the results of scientific ,research and works to simplify them in an easy way that can be understood by the farmers, and then transfers them to them where the practical application of these ideas and practices developed in their fields depends on convincing them of their importance, which motivates them to adopt and implement the new ideas and agricultural practices developed with the aim of Behind this is the advancement of the level of agricultural production and the development of rural income, by raising the efficiency. and productive capacity of farms [5].

Fruit crops take a large part of the agricultural extension's attention and extension services, as fruit crops are among the most rapid progress in the ways and means of their production due to their economic and nutritional importance. It is also a basic source of vitamins and minerals necessary for the vital reactions that take place within the cells of the human body, and the fruit tree To Him is the Spirit. [6].

The olive crop is one of the most important fruit crops, and olives are one of the most important agricultural crops that are suitable for cultivation in newly reclaimed lands, as this is due to the superiority of the growth of olive trees over most other fruit trees, especially under salinity conditions and variations in soil types. Olives are grown in Egypt in most governorates, often singly or with other crops [7]. that the has been mentioned cultivated area of olives increased from five thousand at the end of the seventies to more than one hundred thousand acres the end of the nineties, and this is due to the superiority of the growth of the olive tree in the new reclamation areas than the rest of other fruit crops, especially under conditions of drought and salinity and the variation of types the soil. In view of the existence of new cultivation areas suitable only for the cultivation of olive trees, because of their great tolerance of thirst, salinity and alkalinity, as well as their adaptation to the nature of the desert environment, and the annual increase is expected to continue at a rate of no less than five thousand acres annually.

According to the statistics of the Ministry of Agriculture, the area of olives in the Arab Republic of Egypt is 237,454 acres (224,056 acres outside the valley, 13,398 acres inside the valley), the fruitful area is 144,850 acres, and the average production per acre 3.9 ton, the total production 565669 tons, mostly used as table olives, and about 70,000 tons of fruits are used in extracting about 10 thousand tons of oil.

Olives have many economic and nutritional benefits, as the fruits are used in extracting the oil or as table fruits, as they are used in the form of green olives or pickled black olives. It was explained [8] that olive fruits are of high nutritional value, as each (100) grams of Green fruits meat contains (144 calories, 13.5 grams of fat, 4 grams of carbohydrates, 5.8 grams of water, 1.5 grams of protein, 1.2

grams of fiber in addition to 420 international units of vitamin A, and some minerals such as("phosphorous - calcium - iron)".

The fruits of olives have a high nutritional value, as they are rich in carbohydrates, protein, vitamins and mineral salts, in addition to their high content of oil, which is the fastest digesting oil and is rich in vitamins, mineral salts and monounsaturated fatty acids. Bad cholesterol in the blood, lowering blood pressure, activating the liver and treating digestive diseases, especially ulcers. It is also prescribed for the treatment of many skin diseases. This is in addition to the use of dregs resulting from pressing olives as fodder for livestock [9].

Agricultural extension is considered the link between research and farmers, which transmits the farmers' problems to the research authorities, and here technology becomes the result of scientific research in solving the existing problems of farmers, while farmers are the recipients and users of technology [4].

Hence, agricultural extension has a vital role in agricultural development and overcoming its problems, as it transmits problems to scientific research centers and brings solutions and recommendations to application sites, trying to convince its extension audience, and change their knowledge, skills and attitudes [10].

Role is only SAC and the essential agricultural extension is to help from through educational efforts the process, which has a special character different from formal education not only in the quality of the learners and target groups in the teaching, Quality of the learners and target groups in the and learning process in order to apply the knowledge obtained in every day to solve the problems of farmers, as it Effective indicative education is the remainder of effective educational programs that are characterized by changing the behavior of the target groups, and this change may take many forms, including the change in knowledge, attitudes, and skills . Therefore, extension educational services must be based on the results of research and scientific recommendations. In this way, there are similar and overlapping relationships between extension education and scientific research, and it is the body that develops, develops and adapts technology [11].

The role of agricultural extension does not stop at finding solutions to agricultural productivity problems. Rather, extension services must extend at all stages of agricultural production before and after harvest by providing the counselors with knowledge and experience and providing them with skills related to methods of disease resistance, harvest dates, signs of maturity, sorting, and optimal storage methods to reduce waste [12].

The agricultural sector in Egypt faces great problems and challenges, the most serious of which is the spread of diseases in many agricultural crops. Agricultural crops are infected with many diseases caused by microorganisms, which affects their productivity, and consequently the amount of them

available, which has a direct impact on human food and obliges governments to bear a lot of financial burdens to provide these food products. [13].

See [14] that the rol of agricultural extension is based on determining the level of farmers knowledge or their ability agricultural practices with persuading to implementation of them Pmaajb to follow steps to implement those expressive practices for their needs than it follows that guidance is effective and acceptable to farmers which is based It should , study when measuring the role of agricultural extension in the dissemination and application of technical recommendations related to the production and marketing of the olive crop .The age of the role : from a functional point of view, it is everything that is expected in a specific job or position [4].

While he knew Khader: Ali that he expected behavior of aperson as aresult of his job within acertain of particular group [15]. Ahmed believes that the role is the sum of actions and duties that that the role is that society expects from its organizations and individuals who occupy a social position in certain situations, and roles are of two types: the first is an ideal role: which is what society expects from an individual who occupies a certain position in a specific situation. And the second is a realistic role whichis what society expects from an individual who the individual actually does and whenever he is The individual is realistically close to his ideal role, which helped strengthen the social entity as a whole [16]. In light of the foregoing of the definitions in the concepts of particular role can derive a concept of the role of the extension as a set of expected activities be carriedd out by the guiding device to guide farmers towards E. Happenings changes behavioral in their knowledge and skills they work on e mask are the implementation of agricultural practices and so as to solve the problems Productivity and marketing, which affect their performance of agricultural operations of agricultural crops, in order to raise the efficiency of agricultural productivity for farmers and improve their standard of living. It highlights the role of agricultural extension by playing an effective role in raising agricultural productivity and marketing efficiency by making behavioral changes in knowledge, skills and trends by following the methods of modern agriculture and marketing agricultural crops, as well as linking science with real problems of agricultural production by transferring them to research centers to study and find solutions her operation.

Research problem:-

The olive crop is considered one of the crops that generates a distinguished economic return, whether it is marketed locally or exported. Ismailia Governorate is considered one of the largest governorates and regions of the Arab Republic of Egypt in terms of the area planted with olives. This area has reached19691feddan in the this area represents 8% of the total area of olives at the level of the) with productivity58494 ton. (4.15feddan Republic of (237454) This average is considered low compared to the average productivity in the governorates and other areas that grow olives, such as Beni Suef (7 tons/f), Nubaria (7.33 tons/f), and Menoufia (6.4ton/f)and sohag(5.415ton/f), Bulletin of Agricultural Economics, 2014.

As the agricultural extension in this governorate are responsible for entrusted with the work to bring about behavioral changes desirable in the knowledge, skills and attitudes farmers in the production and marketing of this crop aspects, it region to promote the production an what the trying to identify to conduct research that is was necessary agricultural extension farm in the field of production and marketing of the olive crop in Ismailia Governorate,, the the role of as it is responsible for the change in the region, to determine the nature of this role and the degree to which it is performed to achieve development goals.

Therefore, this research aims to try to answer the following research questions:

- What is the degree to which agricultural extension activities are carried out in the field of olive production and marketing.
- What is the degree to which agricultural extension help farmers
- obtaining knowledge and executive information and their proposals to solve these problems.
- To what degree does the agricultural extension help farmers in solving the production and marketing problems facing olive growers.

Objectives:-

1- Determining the degree to which agricultural extension activities are carried out in the field of olive production and marketing.
2- Determining the degree to which agricultural extension assists farmers in solving the problems they face in obtaining knowledge and executive information and their proposals to solve these problems.
3- Determining the degree to which agricultural extension assists farmers in solving production and marketing problems facing olive growers.
4- Determining the degree of the role of agricultural extension in the production and marketing of the olive crop.
5- Determining the relationship between the role of agricultural extension in the production and marketing of the olive crop and the studied independent variables.

Research hypotheses:-

Correlation between age found - level education j - cultivated area - experience in agriculture - membership in rural organizations- - the frequency of agricultural services organizations- - sources of information farmers respondents -. Agricultural - Direction – towards extension of agricultural extension in the production Marketing in and the role of the olive crop.

Research method:- search area: This research was conducted in Ismailia governorate, which is the province of the largest provinces Republic of Egypt in terms of area planted with olive trees by, reaching the area planted with olive trees by 969 feddan in 2019, representing 29% of the olive area in Wagh –Bahare measuring 6722 feddan ,and represents 8% of the total area of olives at the level of the Arab Republic of Egypt [17].

AFFECTIVE STRATEGIES IN TEACHING AND LEARNING ENGLISH AS A SECOND LANGUAGE (ESL)

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A B S T R A C T:
Learning a language is both an academic and an emotional process of coming to terms with oneself and building relationships with others. This study aimed to determine the extent of affective strategies in lowering anxiety, encouraging oneself, and taking emotional temperature in teaching and learning English as a Second Language (ESL) among language students and teachers of Northern Negros State College of Science and Technology, a state college in the Philippines. This descriptive-comparative study employed validated survey questionnaires to determine the extent of affective strategies for English language teachers and students. The results showed that language teachers and students use affective strategies to lower anxiety, encourage oneself, and take emotional temperature in teaching and learning ESL. Moreover, females use affective strategies more to lower their anxiety and take emotional temperature than males, who had an average outcome. Interestingly, all year levels indicate a great extent in all three areas. Furthermore, sex and year level are significant in the use of affective strategies specifically in lowering anxiety and encouraging oneself. No significant difference was found in the extent of use of affective strategies among teachers and students. This study recommends the use of affective strategies in teaching ESL, integrated in the materials and methods to further enhance the language learning process of the students.

K E Y W O R D S
Affective strategies, Teaching and learning English as a second language (ESL)

INTRODUCTION

Language learning is both academic and emotional as it is a process of self-realization and of relating to other people. Motivation is one of the learning elements that affect learners' linguistic attitudes and classroom anxiety (Tovar Viera, 2016). These ideas emphasize the most important and undeniable role that the affective domain plays (Learner Training 4 – Social and Affective Strategies 4, ICOSA, 2013).

Affective learning strategies fulfill the affective domain, which consists of lowering one's anxiety, encouraging oneself, and taking one's emotional temperature (Fotokian, 2015). Affective techniques help language learners control confidence, motivation, and attitudes. Teachers overlook a crucial point by judging themselves based on student achievements (Posinasetti, 2014). When teachers focus on assessment results rather than valuing the emotional processes that learners go through, they affect the behavior and performance of students exposed to a language classroom that demands them to do well in tests rather than allow them to develop positive emotions toward themselves and the learning process. Indeed, using affective strategies can help students and teachers to value the

learning process more and focus on realizing what is truly essential. Affective techniques involve controlling negative and good emotions. Oxford (1990) categorized the general sets of affective strategies into lowering anxiety, encouraging oneself, and taking emotional temperature.

Language teaching and learning are two-way processes. Learning and teaching a second language traditionally takes a lot of time and space (Rajput & Shah, 2021). However, due to the demands of globalization, technological integration and high expectations and pressures for improved results in skills and cognition, most educational institutions fail to emphasize the important role that the affective domain plays in the teaching and learning process. Most English Language Teaching (ELT) studies focus on the cognitive domain and disregard the emotive area. Humanism has focused on emotions such as motivation, anxiety, and self-esteem. These researches largely focused on language learners' emotions while ignoring teachers. Since instructors' perspectives impact their teaching, understanding how they view the emotional domain of language education can help us understand their attitudes toward learners. There is an emphasis on the requirement for fluency in the use of the language, and they neglect the idea of developing among learners the sensibility in conversations, high regard for self-worth and others, the ability to consider learning a language as part of self-realization and not just a cognitive breakthrough or a requirement for the completion of one's degree. Students are more concerned about the scores they get from language tasks than the meaningful process they undergo as they discover and develop various language skills.

Despite the consideration and emphasis given on the role and importance of affect in learning such as in functional and anthropological linguistics, it has been neglected in second language acquisition (SLA) literature (Dewaele,2011). In foreign language learning, affect and emotion are concepts that were not given primary focus since most discussions focus more on the discovery and utilization of new language (Garrett & Young, 2009). SLA writers give little attention to affect and motivation. They do not give much attention to those that affect one's use of affect and emotion in language learning. Many educators, especially classroom teachers, focus their objectives and measurable outcomes on cognitive learning, which leads to the neglect of lessons focused on affective learning. Affective learning is difficult to detect and measure, which may explain its neglect. Affect is important in teaching and learning despite this perceived difficulty (Holt & Hannon, 2013). Ni (2012) emphasized that affective factors can contribute to whole-person development beyond language education and even the academic domain". Affective elements are important in second and foreign language acquisition and teaching. With these premises, it is necessary to look at the use of affective strategies among teachers and students.

OBJECTIVES

The research determined the extent of using affective strategies in terms of lowering anxiety, encouraging oneself, and taking emotional temperature in teaching and learning ESL as assessed by the English teachers and students of Northern Negros State College of Science and Technology (NONESCOST), a state college in the Philippines. Specifically, it sought to determine the extent of affective strategies in teaching and learning English as a Second Language (ESL) among the language

teachers and students of NONESCOST when grouped according to sex, year level, and the extent of use of affective strategies as a whole.

METHODS

Design

The descriptive-comparative research design was utilized to determine the extent of using affective strategies in teaching and learning among students and teachers of NONESCOST. The comparative research design was found to be the appropriate design to determine if there was a significant difference in the extent of using affective strategies in learning ESL among the language teachers and students of NONESCOST.

Respondents and sampling procedure

The respondents of this study were 167 English language students and 5 language teachers of NONESCOST, a state college in the Philippines. These students were enrolled in English classes as their major subjects and were randomly selected from each year level using proportionate stratification.

Research instrument

Two researcher-made survey instruments were used respectively for teaching and learning. The survey questionnaires contained 20 questions on the use of affective strategies in ESL The questions are based on the variables of affective strategy on language learning, which are lowering anxiety, encouraging oneself, and taking an emotional temperature. There were six questions for reducing anxiety and seven questions each for self-encouragement and for monitoring emotional temperature. The questionnaires used the Likert scale with 5 (Always), 4 (Very often), 3 (Often), 2 (Sometimes), and 1 (Never). The survey questionnaires were submitted to three experts for validity using the Content Validity Ratio (CVR) of Lawshe (1975). The CVR was used to measure content validity for performance domains specifically on observable behaviors. Each item in both questionnaires was evaluated by the experts as "Essential," "Useful but not essential" and "Non-essential". The results were then calculated using the CVR table which incurred a value of 1 interpreted as Very Valid. The validated questionnaires were subjected to reliability testing using Cronbach Alpha. Thirty AB-English students were considered as respondents for the pilot test of the study; these students were not part of the main respondents. The reliability score was 0.786 which denoted a high degree of reliability.

Data collection

The approval of the Vice-President for Academic Affairs and the Department Head of English Language Studies was sought prior to the administration of the validated questionnaires to the

respondents. Upon approval, the researcher personally administered the validated questionnaires to the respondents. The instrument was administered on a schedule when the respondents from each year level were available and were willing to answer the questionnaire. The data from the respondents were collated, tabulated, and analyzed using the appropriate statistical tools. The descriptive statistical analysis, specifically the mean, was used to analyze the extent of using affective strategies in learning and teaching ESL among the language students and teachers of NONESCOST. In the analysis of the results of the survey from the respondents, the scale together with the verbal description and verbal interpretation was used to refer to the extent of use of the affective strategies. Variables such as sex and year level as well as the three classifications of strategies: lowering anxiety, encouraging oneself, and taking an emotional temperature, were used in the analysis of the results.

Ethical considerations

Voluntary participation of respondents in the research was observed. Respondents participated by informed consent. The researcher provided sufficient information and assurance to the respondents about their participation in the study and a thorough understanding of its implications. Moreover, participants were given the right to withdraw from the study at any stage if they wished to do so. Privacy and anonymity of respondents were given paramount importance. Ideas of other authors used in any part of this research were acknowledged. The objectivity in discussions and analyses throughout the research was maintained with the highest standard.

Statistical analysis

The inferential statistical analysis was used to analyze the data to answer problems seeking for significant differences. T-test was used to determine the significant difference in the extent of affective strategies in learning ESL among the language students when grouped according to sex and in identifying the significant difference on the extent of use of affective strategies between teaching and learning ESL while ANOVA was used for the significant difference when grouped according to year level.

RESULTS AND DISCUSSION

Below are the results of the survey on the use of affective strategies in learning and teaching ESL among language students and teachers of NONESCOST when they were assessed based on the three variables: lowering anxiety, encouraging oneself, and taking emotional temperature and when the students are grouped according to sex and year level.

Extent of use of affective strategies in learning ESL

Table 1. Extent of lowering anxiety in learning ESL as to sex

Variables	Mean	Sd	Interpretation
Sex			
Male	3.40	0.80	Average Extent
Fema Female		3.69	0.69 Great Extent
As a Whole	3.67	0.70	Great Extent

Lowering Anxiety. Table 1 shows that when students are grouped in terms of sex, males have an average extent of use on lowering anxiety (M=3.40, SD=0.80) while females have a great extent of use (M=3.69, SD=0.69). This shows that female students use lowering anxiety techniques more than male students do. Male students use affective strategies only in some language learning activities while female students use those strategies most of the time in the classroom. During a language class, they use strategies to lower their anxiety such as breathing exercises, relaxation techniques, talking to someone about how they feel, visualizing something positive, incorporating music in language activities, and using humor to release tension and bring pleasure to the classroom. It also showed that although female students experience anxiety and stress in the process of learning a language, they know how to reduce such and be able to accomplish tasks despite their negative feelings. Whenever they are faced with difficult language tasks or when language learning brings them anxiety and stress, female students use techniques to lower their anxiety and keep themselves relaxed most of the time. This finding is supported by the study of Ylmaz (2010) which indicated significant differences between means of affective strategies according to gender in favor of females. It showed that females use more affective strategies frequently than males do. It is also affirmed by the study of Shah et al. (2012) which found that women generally used learning strategies more frequently than men with the difference being statistically significant in the case of social, affective, and memory strategies.

Table 2. Extent of encouraging oneself in learning ESL as to sex

Variables	Mean	Sd	Interpretation
Sex			
Male	3.65	0.77	Great Extent
Female	3.92	0.64	Great Extent
As a Whole	3.90	0.65	Great Extent

Encouraging Oneself. Table 2 shows that in terms of sex, both male (M=3.65, SD=0.77) and female (M=3.92, SD=0.64) language students have a great extent of use in terms of encouraging oneself. However, the female respondents have a higher mean when compared to male respondents. When taken as a whole, both revealed a great extent of use. This implies that both male and female language students use affective strategies most of the time in the classroom but not in all language learning activities. They encourage themselves when they are shy, reward themselves when they have

completed a language learning activity, make positive statements about themselves to boost their confidence, keep a positive mental note about learning English, use corrections to remedy speech errors, focus on previous language achievements as well as use positive remarks about their abilities towards the realization of their full language potential. The findings also revealed that language students believe in the concept of encouragement as an important tool to boost one's confidence and self-belief in order to hurdle language difficulties and challenges. Also, language students believed in the concept of self-encouragement as a classroom practice every time they are experiencing errors, shyness, and discouragement. Parker (2007) said a continuous and sometimes strong correlation between a student's motivation and learning opportunity is limited, but domain-specific motivation variances are noticeable. All three motivation measures correlated favorably, considerably, and sometimes strongly with deep cognitive methods and challenge effort. Certain academic disciplines had minimal gender variations in learning motivation. Positive (and sometimes substantial) relationships between motivation and learning variables suggest that slight gender variations in motivation may coexist with small learning disparities for boys and girls. One of the strategies for encouraging oneself is the use of rewards. In the study of Nurmela (2017), the least satisfied student reported infrequently using the strategy of rewarding themselves, while the most satisfied students reported using this strategy at a moderate frequency. While rewarding oneself may not be used by the most successful learners in terms of academic achievement, it can help students feel better about their development. Encouraging oneself to speak was used slightly more frequently by the most satisfied students, but it was used highly frequently by the least satisfied, most satisfied, and all students alike.

Table 3. Extent of taking emotional temperature in learning ESL as to sex

Variables	Mean	Sd	Interpretation
Sex			
Male	3.30	0.67	Average Extent
Female	3.72	0.58	Great Extent
As a Whole	3.68	0.60	Great Extent

Taking Emotional Temperature. Table 3 shows that in terms of sex, male language students have an average extent (M=3.30, SD=0.67) while female language students have a great extent (M=3.72, SD=0.58) of use on taking emotional temperature. When taken as a whole, the respondents have a great extent of use. This implies that male students use affective strategies only in some language learning activities while female students use it most of the time in the classroom. They take emotional temperature by dwelling on positive feelings, managing moods and emotions, writing their feelings in a diary, taking part in speaking activities, identifying their strengths and weaknesses, and talking to themselves while answering a question or thinking about a particular language task more compared to male respondents. Female language students manage their emotions and moods by exploring activities that benefit their process of language learning compared to males. Although females have

been constantly identified as more emotional than males and have been constantly associated with emotional breakdowns, this study reveals that females know how to manage their emotions and moods which they then use in the process of learning a language.

Table 4. Difference in the extent of affective strategies in learning ESL as to sex

Areas	Variable (Sex)	Mean	SD	df	t	Sig	Interpretation
Lowering Anxiety	Male	3.40	0.80	165	-1.48	.014	Significant
	Female	3.69	0.68				
Encouraging Oneself	Male	3.65	0.77	165	-1.44	.151	Not Significant
	Female	3.92	0.64				
Taking Emotional Temperature	Male	3.30	0.67	165	-2.48	.142	Not Significant
	Female	3.72	0.58				
As a whole	Male	3.45	0.66	165	-2.00	.047	Significant
	Female	3.78	0.56				

Table 4 shows the difference in the extent of use of affective strategies in learning English among the language students when grouped according to sex. The three areas: Lowering anxiety, encouraging one, and taking emotional temperature were assessed based on sex. When a t-test was used to identify if there was a significant difference in lowering anxiety, male (M=3.40, SD=0.80) and female (M=3.69, SD=0.68) yielded a significant difference [t=1.48, p=0.014]. Alternatively, there is no significant difference in the use of encouraging oneself and taking emotional temperature when grouped based on sex. On encouraging oneself, male (M=3.65, SD=0.77) and female (M=3.92, SD=0.64) yielded a result [t=1.44, p=0.151] which is not significant. On taking emotional temperature, male (M=3.30, SD=0.67) and female (M=3.72, SD=0.58) yielded a result [t=2.48, p=0.142] which is not significant. However, when taken as a whole, male (M=3.45, SD=0.66) and female (M=3.78, SD=0.56) yielded a significant difference [t=2.00, p=0.047]. This implies that sex is a factor in the use of lowering anxiety strategies of students in a language class but not for encouraging oneself and taking emotional temperature. However, in general, sex is a factor when it comes to the use of affective strategies in language learning. The use of strategies such as lowering anxiety, encouraging oneself and taking emotional temperature varies between male and female language students. As shown in the previous results, it was observed that female language students have a greater extent of use of the said strategies when compared to male language students. The findings of the present study are supported by the study of Oxford and Nyikos (1989) cited in Nurmela (2017) which found that female students reported a higher frequency of strategy use in three out of five strategy factors studied which are memory, cognitive, compensation, metacognitive and affective while male students did not report a higher frequency of use in a single category. This shows that gender affects strategy utilization. This is also affirmed by the study of Shah et al. (2012) on strategies of students in Malaysian universities which found that women generally used learning strategies more frequently than men with the difference being statistically significant in the case of social, affective and memory

strategies. However, it is negated by the study of Griffiths (2003) which found that there is no statistically significant difference in reported frequency for strategy use between male and female learners. Since Griffiths (2013) argues that women tend to be more motivated towards language learning and, as discussed above, motivation significantly affects learners' strategy use, there is little difference in the frequency of strategy use between men and women.

BIOLOGICAL ACTIVITIES OF FUNGUS *ASPERGILLUS FICUUM*: *IN VIVO*, *IN VITRO,* AND *IN SILICO* ANALYSES

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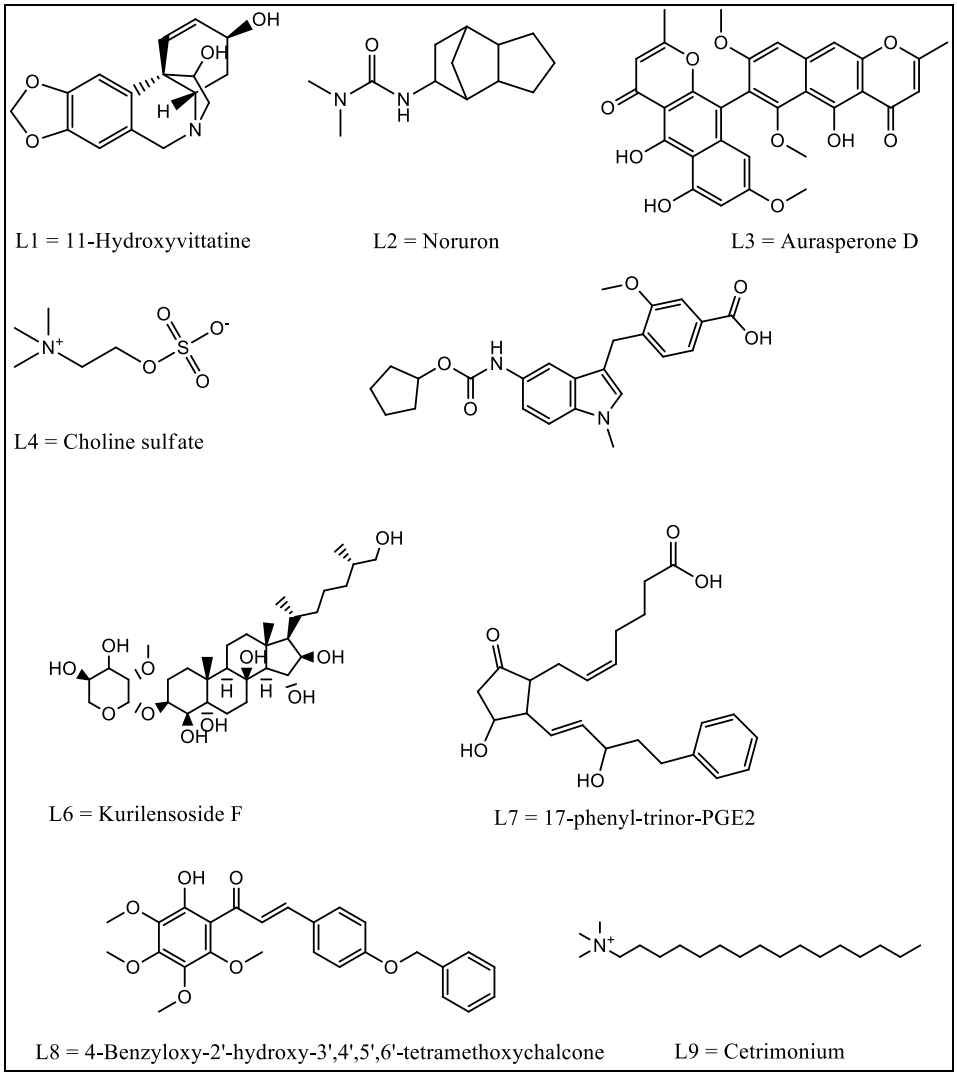

Figure S1. Structures of tentatively identified ligands (L1-L9).

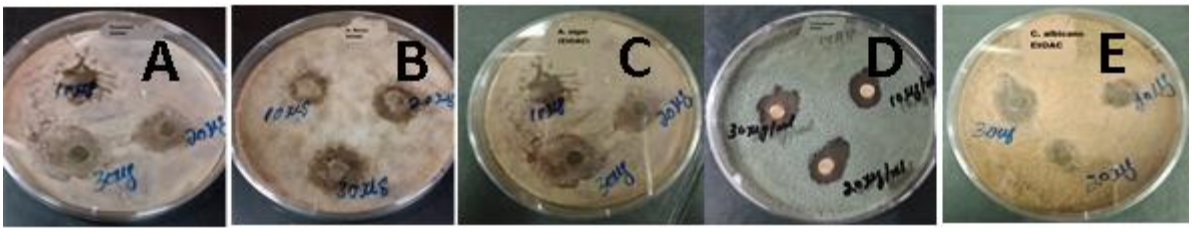

Figure S2. Pictures of Antifungal activity of EtoAC extract **A**: *Fusarium oxysporium,* **B**: *Aspergillus flavus*, **C**: *Aspergillus niger*, **D**: *Trichoderma harzanium*, **E**: *Candida albicans.*

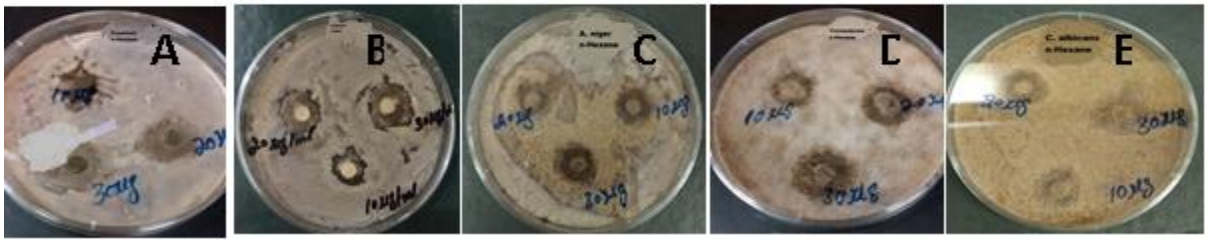

Figure S3. Pictures of Antifungal activity of n-Hexane extract **A**: *Fusarium oxysporium*, **B**: *Aspergillus flavus*, **C**: *Aspergillus niger*, **D**: *Trichoderma harzanium,* **E**: *Candida albicans.*

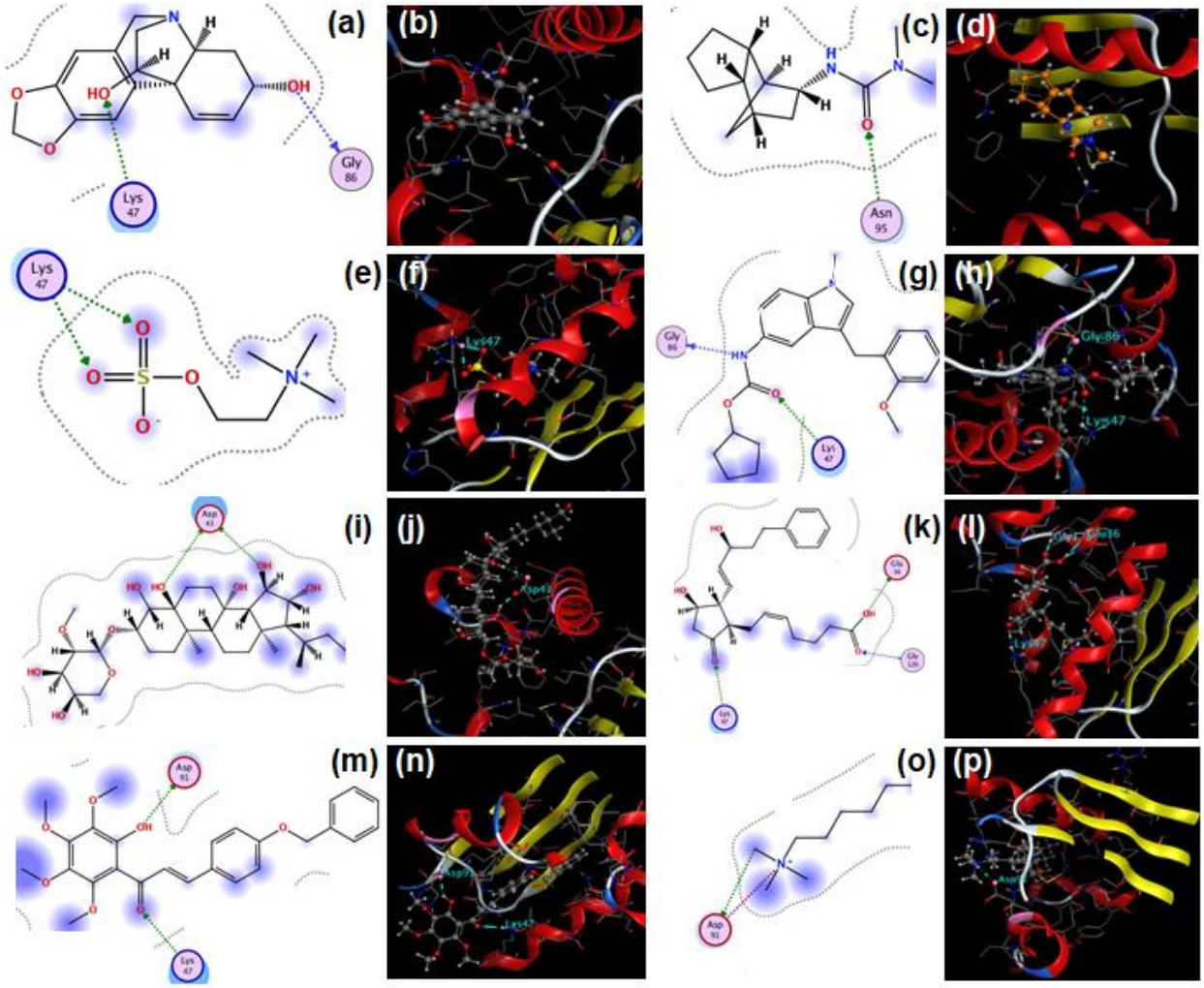

Figure S4. (a) 2D and (b) 3D interactions of L1-Hsp90 complex; (c) 2D and (d) 3D interactions of L2-Hsp90 complex; (e) 2D and (f) 3D interactions of L4-Hsp90 complex; (g) 2D and (h) 3D interactions of L5-Hsp90 complex; (i) 2D and (j) 3D interactions of L6-Hsp90 complex; (k) 2D and (l) 3D interactions of L7-Hsp90 complex; (m) 2D and (n) 3D interactions of L8-Hsp90 complex; (o) 2D and (p) 3D interactions of L9-Hsp90 complex.