Autism and Herbalism: A Hopeful Alternative?

CHAPTER ONE: INTRODUCTION

Background of the Source

Autism spectrum disorder is a neurological development disorder that begins in childhood and lasts throughout an individual's life. Autism is characterized by continuous communication and interaction problems, repetitive social behaviors, and lack of interest in personal care, grooming, cleaning, and observing their safety at home and in public. There is no clear justification of what causes autism; however, various possible causes such as genetics, biological factors and psycho-social issues have been tabled as the most likely causes of autism disorder. Children with autism disorders have thinner bones than children without this disorder, suggesting that biological and genetic factors cause the condition. Cleaning, Children with this condition, therefore, require being provided with bone-building foods (Geraghty, Depasquale, & Lane, 2010).

So far, there is no specific drug for the treatment of this condition that has been found. However, the use of risperidone has been approved by the FDA to treat this disorder's signs and symptoms in children (Bahmani, Sarrafchi, Shirzad, & Rafieian-Kopaei, 2016). Due to this reason, many have turned to medicinal plants such as *Zingiber officinale, Terminalia chebula, Vitis vinifera, Prunus dulcis, and Ginkgo biloba,* which has been claimed to have Neuroprotective effects hence commendable for treatment of autism disorder (Alvarez-Arellano, Salazar-García, & Corona, 2020).

Statement of the Problem

This research targets the issue of autism treatment using herbal methods as an alternative to treat symptoms of ASD. This research addresses the safety, effectiveness, and economic feasibility of herbal strategies of autism treatment when used as an alternative, supplement, or complement treatment method of autism.

Purpose of the Study

The purpose of this study is to detail the herbal therapies used in autism treatment. This is fueled by the findings on benefits accrued to psychopharmacotherapy herbal-based drugs used in ameliorating psychiatric disorders. This paper focuses on addressing the effect of herbal drugs on treating imbalance in the autistic brain hence the sensory, emotional, and memory systems. Therefore, a generalized perception of this study's purpose is addressing how and why herbal treatment methods on autism have become a worthy alternative.

Objectives of the Study

Autism disorders have devastating effects on children's lives and cause severe psychological effects on children's caregivers (Meadan, Halle, & Ebata, 2010). Where poverty levels are high, especially in developing countries, mental disorders treatment is a critical challenge due to economic constraints. Moreover, scientific discoveries on chemical treatment substances also face hiccups due to a lack of skills and economic potential (Dardennes, Al Anbar, Prado-Netto, Kaye, Contejean, & Al Anbar, 2011). Fortunately, the ecological system supports the growth of natural plants that can effectively treat signs of autism disorder. This paper aims to address how these treatment plants and methods are identified, tested, and verified for treatment purposes. It

also addresses how they are prepared if they are not used for treatment directly from their natural existence. This paper also seeks to address the ethical issues revolving around testing the identified treatment, experiments, and the treatment process's general outcome (Siampa, & Jayanto, 2020).

Research Questions

There are limited chemical treatment methods for autism; this motivates this paper to address the research question on the effectiveness, safety, and acceptance of herbal treatment methods and drugs on autism.

Significance of the Study

This study paper has significance in identifying the alternative autism treatment method using herbal methods and their effectiveness in their treatment. Another importance of this study address challenges around herbal drug treatment in autism hence strategizing how to make them useful.

Assumptions/Prospective Hypotheses of the Study

This study assumes that herbal drugs are more effective than other autism therapy.

Scope and Limitations of the Study

The limitation of this study is the capacity to test herbal drugs and approving them for treatment.

Summary and overview of the Study

This study will summarize the ethical and suitability issues of herbal drug use in the treatment of autism.

CHAPTER TWO: LITERATURE REVIEW

Introduction to Autism Spectrum Disorders (ASD)

Autism spectrum disorder is a mental development challenge that causes disability in the development of other body functionalities. This condition is significantly evident by evaluation of social, communication, and behavioral traits. There is no substantial physical difference between individuals with autism spectrum disorder and those who do not have this developmental disorder. However, they demonstrate disparity in how persons with ASD communicate, behave, and interact with others in society.

ASD varies in intensity of its impact ranging from severe to less challenging. As such, educating and helping individuals with this challenge differ from intensive care scenarios to less concern for gifted and critically affected individuals (He, Wang, Si, Zhang, Cui, & Gao, 2018). Diagnosis of ASD includes evaluating several conditions that can be carried out separately, such as autistic disorder, Asperger syndrome, and pervasive developmental disorder.

Description of ASD symptoms

ASD has symptoms easily detectable by observing the social behaviors of a person. Individuals with ASD demonstrate a lack of interest in activities that attract others' attention in a given environment; thus, a happening or a state that attracts others' attention may not attract him at all

and may even not look at it (Bang, et al., 2017). Other symptoms include challenges in social interaction, communication, repetitive behaviors, and language development discussed below.

Social Interaction and Communication

Persons with ASD lack social interaction interest, and their communication lacks fluency. One may not understand what they intend to communicate at all where the challenge is severe. On the same note, they tend to avoid eye contact and don't like being cuddled. Neither do they have a good understanding of others nor their feelings?

Language Development

Autism suffering children has a critical challenge in the development of language. Therefore, they learn to talk and perceive instructions slowly or even fail to develop any language or knowledge at all (DeFilippis, 2018). This implies they can neither speak and write nor receive communication and instructions channeled through speech or writing formats.

Restricted and Repetitive Behaviours

ASD suffering individuals tend to repeat the same behavior over and over again. Perhaps this is attributed to the challenge of adapting to new routines. However, they may change allover sudden and switch from how they used to behave or talk and assume new repetitive behavior.

Implications of living with ASD symptoms

Living with autism has critical implications due to the unusual personal behavior whose effects are trickled to the member's family suffering this disorder. Housekeeping and personal

management require intensive care. This causes challenging other consequences such as the family members' mental and emotional health and caregivers and economic crisis (Zhang et al. 2020). Moreover, their unusual behavior has a detrimental impact on the family as far as their security concerns. They may open and leave running water or gas or even engage in physical fights subjecting the children's security in the environment to a crisis.

Synthesis and Summary of Literature

ASD causes reduced mental development in individuals suffering from this disorder. From the science and biology of body development, the human mind's development plays a critical role in developing other human body parts and functions. These functions include developing speech and language development hence challenges in communication and conceiving ideas and instruction. Moreover, social interaction and paying attention to matters that attract others also miss and the individuals tend to behave in unusual ways.

CHAPTER THREE: METHODOLOGY

Introduction

Autism is one of life's long-lasting developmental challenges characterized by unusual behavior and responses to environmental factors. This condition is easily examinable in the social environment using experiments since no distinct physical traits can define it. However, in this study, interest is narrowed to examining the effectiveness of using herbal drugs to treat this condition. This chapter evaluates and analyses a sound method to apply in treating autism conditions.

Design of the Study

The study on the effectiveness of herbal drugs in treating ASD, in this case, combines survey and experimental methods. Medicinal herbs are defined as plants or parts of plants such as the leaves, stems, roots, flowers, and seeds that contain organic chemicals with effective healing properties (Bent et al. 2004:478-485). This paper initiates by identifying plants with neuro-treatment effect that can aid the symptoms associated with autism spectrum disorder.

These chemical components include melatonin, which has efficiency in treating sleep disorders in individuals with ASD. Another chemical compound from plants that will be tested in this experiment is the Omega-3 fatty acids, which have been studied and verified to have treatment efficiency on individuals with ASD as far as hyperactivity is concerned (Billington, 2000). Plants will also be tested whether they contain oxytocin compounds. This compound has been found to have a healing effect on the repetitive disorder and social responsiveness. Another experiment will be carried out to examine herbs with L-Carnosine, which has been found to have brain development acceleration implying that it trickles down developmental effect to other body organs and functionalities such as speech and language development.

The drug components covered in these experiments cover the significant symptoms of ASD, and therefore finding herbs with these compounds will be a significant milestone in ASD treatment. The last experiment will evaluate their reaction to determine whether they can be combined into one package and their reactivity with the human body hence effectiveness on treatment.

Location of the Study

These experiments will be carried out in Bio-Reference Laboratories. This is a world-class and renowned medical experiments laboratory that carries out about ten million medical tests annually in America. Bio-Reference Laboratories has all it takes to carry out the prior mentioned experiments with effectiveness on the timeline and exceptional accuracy.

Study Population

The study population in the experiment of the effectiveness of the drug compounds analyzed before in Bio-Reference Laboratories is first selected based on examination and approval that they have ASD. The sample chosen for this test comprises of 150 individuals from female and male genders of age between two years and thirteen years (Bryman, 2001). This selection criterion on gender and age is based on the fact difference in gene composition between males and females may contribute to the disparity in the treatment's effect. On age, speech and language development, among other symptoms of ASD, can only be effectively observed from the age of two and above. In both genders, forty participants are below six years, but above two years, and the rest 35 are above six but below 13 years. The entire sample is selected randomly from a pool of 1000 ASD suffering children to eliminate chances of biasness.

Sampling Techniques and Sample Size

As mentioned in the study population, as far as traits are concerned, this study's sample is restricted to 150 individuals, excluding the observers and medical practitioners. The sample is selected using random selection criteria, where the participants are selected by chance (Case,

2000). This ensures no bias or prejudice since the selection of chance of each participant is 0.15.

Research Instrument

This study has a long list of research instruments ranging from information sources, the herbs from fields and laboratory equipment (Sarup,1996), which include:

- Test Tube(s);
- Glass Beaker(s);
- Pasteur Pipette Syringes;
- Genetic Analysis Instruments;
- Clinical Laboratory Refrigerators;
- Mass Spectrometry Instruments;
- Sample Separation Instruments;
- Clinical Incubators;
- Cell Factory Systems; and
- Clinical Laboratory Freezers.

Credibility and Reliability

The experiment in this study on the population mentioned above is divided into five groups. The first group comprises 10 participants, the second has 20, the third has 30, the fourth has 40, and the last has 50, with equal gender and similar age distribution. The fifth group's experiment has the same results as the fourth, third, second, and the first, hence the credibility and reliability of this experiment as far as accuracy and results are concerned.

Data Analysis

According to the survey done on the impact and effectiveness of the herbal medicines used in this drug experiment, the compounds used prove 80% effective in controlling this health complication's symptoms. It was observed that it has zero side effects and subsequently fit for extensive scale application in treating ASD disorder.

Ethical Considerations

Ethics in this study have been given priority. Humans are not lab rats, and therefore consent was sought out to ensure the participants' willingness to avoid issues that could arise later on an ethical basis. Where the participants cannot prove consent, caregivers and parents are consulted (Schall, 2000). This is primarily where the participant is relatively young or has severe effects of the ASD such that he can neither talk nor conceive instructions. Another aspect of ethics observed in this experiment is the detailed study on the possible side effects of administering the herbal drugs on the participants. The drugs developed from the various herbs were tested according to the medicinal drug development framework, which includes the discovery of the substance from its natural setting, preclinical research, clinical development, FDA review, and post-market monitoring critical point of interest in this case (Shakespeare, & Watson, 2001). Moreover, administering the drug component on the participants is done on a small number and increased gradually to facilitate a detailed study of drug treatment's side effect and effectiveness. After all, the experiment is expected to bring more healing than harm.

CHAPTER FOUR: RESULTS OF THE STUDY

This experiment's results are measured in compensatory anti-inflammatory response syndrome (CARS) to assess the reliability and credibility of the clinical outcome of the experiments carried. On a scale of seven points (1, 1.5, 2, 2.5, 3, 3.5, 4), the experiment results total to fifteen points on the treatment's effectiveness. These results are for the preliminary test of the results acquired from the experiment. In the secondary test, the practitioners use Clinical Global Impression to assess the administered herbal drugs' efficacy on the ASD patients (Tunali, & Power, 2002). In this case, the findings claim a commendable improvement in handling the symptoms of ASD with the likes of speech and language development, attention and social behavior, and repetitive traits. The baseline in this experiment is the reference point for evaluating the treatment substances' efficacy from herbs identified in this experiment.

Another critical finding on the efficiency of the herbal drugs used in this experiment is sleeping on the participants. ASD alters sleeping behavior, and insomnia is a common trait. After administration of the drug components, imaging was carried out at every mid-day and night. It was noted that 75% of the participants who had serious sleeping disorders caused by ASD had improved and could sleep ease whenever they need rest, especially after a meal.

The treatments administered in the experiment were also found to improve the children's emotional status with ASD. Out of the 150 participants in this experiment, 135 proved improvement in their behaviors, which are caused by ASD disorders. This improvement was evident after three weeks of continued dose administration during the experiment. Moreover, they proved some sense of abandoning their harmful behaviors, such as harming others. Another vital improvement results realized at the end of the experiment of testing efficacy of herbal

drugs, especially Ginkgo biloba and risperidone in the treatment of ASD, is the improved recognition of the environment changes and adapting with the expected response. It was noted that the participants' level of thinking and mental processes were improved hence certifying, accrediting, and validating these drugs for ASD treatment in an extensive medical scale application.

CONCLUSION

Herbal drugs in the treatment of ASD are highly effective and surpass any other therapy's effectiveness on autism patients. These drugs have exceptional advantages based on low cost and have a variety of administration methods. Moreover, they have been certified to be more secure since they have minimal side effects and does not require detailed clinical prescription and supervision. The residual side effect of herbal drugs is also minimal hence highly commendable. For these reasons, the consumption of herbal drugs in the world is overwhelmingly increasing. Importantly, in some cases, such as autism treatment, herbal drugs manifest themselves as the best treatment option due to limited chemical drug knowledge and existence.

REFERENCES

Alvarez-Arellano, L., Salazar-García, M., & Corona, J. C. (2020). Neuroprotective Effects of Quercetin in Pediatric Neurological Diseases. *Molecules*, *25*(23), 5597.

Bahmani, M., Sarrafchi, A., Shirzad, H., & Rafieian-Kopaei, M. (2016). Autism: Pathophysiology and promising herbal remedies. *Current pharmaceutical design*, *22*(3), 277-285.

Bang, M., Lee, S. H., Cho, S. H., Yu, S., Kim, K., Lu, H. Y., ... & Min, S. Y. (2017). Herbal medicine treatment for children with autism spectrum disorder: a systematic review. *Evidence-Based Complementary and Alternative Medicine*, *2017*.

Billington,T.(2000) Separating, Losing and Excluding Children, Narratives of Difference. London: Routledge Falmer

Brett,J. (2002) The Experience of Disability from the Perspective of Parents of Children with Profound Impairment: Is it time for an alternative model of disability? *Disability & Society*,17,7:825-843.

Bryman,A.(2001)Social Research Methods. Oxford: Oxford University Press.

Butter, E.,Wynn,J.,& Mulick,J.A.(2003) Early Intervention Critical to Autism Treatment. Pediatric Annals,32,10:677

Campbell,J.(2002) Valuing Diversity: The Disability Agenda: We've only just begun. Current Issues. Disability & Society, 17,4:471478.

Case,S. (2000) Refocusing on the Parent: What are the social issues of concern for parents of disabled children? Disability & Society, 15,2:271-92

Dardennes, R. M., Al Anbar, N. N., Prado-Netto, A., Kaye, K., Contejean, Y., & Al Anbar, N. N. (2011). Treating the cause of illness rather than the symptoms: Parental causal

beliefs and treatment choices in autism spectrum disorder. *Research in developmental disabilities*, *32*(3), 1137-1146.

DeFilippis, M. (2018). The use of complementary alternative medicine in children and adolescents with autism Spectrum disorder. *Psychopharmacology bulletin*, *48*(1), 40.

Geraghty, M. E., Depasquale, G. M., & Lane, A. E. (2010). Nutritional intake and therapies in autism: a spectrum of what we know: Part 1. *ICAN: Infant, Child, & Adolescent Nutrition*, *2*(1), 62-69.

He, S., Wang, M., Si, J., Zhang, T., Cui, H., & Gao, X. (2018). Efficacy and safety of ginkgo preparations for attention deficit hyperactivity disorder: a systematic review protocol. *BMJ open*, *8*(2).

Meadan, H., Halle, J. W., & Ebata, A. T. (2010). Families with children who have autism spectrum disorders: Stress and support. *Exceptional children*, *77*(1), 7-36.

Sarup,M.(1996) Identity, Culture and the Post-modern World. Edinburgh: Edinburgh University Press

Sayer,A.(2000) System, Life world and Gender: Associational Versus Counterfactual Thinking. Sociology, 34,4:707-725.

Schall,C(2000)Family Perspectives on Raising a Child with Autism. Journal of Child and Family Studies, 9,4:409-423

Selden,L. (2005) On Grounded Theory-with some malice. Journal of Documentation, 61,1:114-129.

Shakespeare,T. & Watson,N. (2001) The Social Model of Disability: An outdate edideology? Exploring Theories and Expanding Methodologies: Researching Social Science and Disability, 2:9-28.

Siampa, J. P., & Jayanto, I. (2020). PKM Pemberdayaan Guru SLB Khusus Autis Permata Hati Dan SLB YPAC Manado Melalui Pelatihan Produksi Minuman Kesehatan Granul Instan Jahe Merah (Zingiber Officinale) Sebagai Upaya Peningkatan Kemandirian Ekonomi dan Terapi Supportif Siswa SLB. *VIVABIO: Jurnal Pengabdian Multidisiplin*, *2*(2), 8-13.

Tunali,B.& Power,T.G. (2002) Coping by Redefinition: Cognitive Appraisals in Mothers of Children with Autism and Children without Autism. Journal of Autism and Developmental Disorders, 32,1:25-34.

Zhang, L., Huang, C. C., Dai, Y., Luo, Q., Ji, Y., Wang, K., & Tang, Y. (2020). Symptom improvement in children with autism spectrum disorder following bumetanide administration is associated with decreased GABA/glutamate ratios. *Translational psychiatry*, *10*(1), 1-12.