

## ETHNOBOTANICAL APPROACHES TO NOCTURNAL ENURESIS: A STUDY OF YORUBA HERBAL PRACTICES IN NIGERIA

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### ABSTRACT

*This paper explores the indigenous knowledge of herbal, social, and bricoleur methods used to cure nocturnal enuresis (NE) among the Yoruba people of Southwestern Nigeria. The paper adopted an explanatory research methodology, using percentages mainly, to investigate how the NE is cured among the Yoruba cultural group in the study area. Multi-staged sampling technique was adopted in selecting the sample population. Primary data were collected, first, from a sample of 10 adults (comprising of 6 men and 4 women), out of a population of 15 adults whose treatments are on going at the period of collection of data for this research. The 15 adults were suffering from the NE at the time of this survey. The 15 patients came directly to the indigenous healing centre at the secluded area of Modakeke town within the Ile-Ife cosmopolitan town at the time the data was collected. Using convenience sampling technique, 10 patients were marked down as sample for the survey because they resided around the Ife environs and could be quickly monitored while the remaining 5 patients came from a faraway place within Nigeria. Second, also 10 healed ex-patients living in Ile-Ife environs, out of a population of 20 ex-patients who suffered in the past from NE, but who had received perfect healing in the past 5 years were followed up using the addresses indicated during their first registration at the healing centre. In total, the survey included 20 respondents from a population of 35. The information needed were also collected from secondary sources that have been classified as credible published articles. Subsequently, the data generated were analyzed for easy apprehension using appropriate descriptive and inferential tool, percentages. The findings showed that the indigenous banana stem herbal remedy is very effective in permanently curing NE among the patients/respondents.*

**Keywords:** Indigenous/Herbal Remedies, Social Entrepreneur, Bricoleur, Nocturnal Enuresis, Explanatory Research.

### INTRODUCTION

This paper is a report of an explanatory research that were made to study the efficacy of the herbal combinations in the treatment of the NE among the generality of the people in the study area. It is commonly observed in literature that despite the availability of several therapies for Nocturnal Enuresis (NE), none has been found universally effective. This study is in this direction. The research study lasted five months between February 2<sup>nd</sup> 2024 and June 30<sup>th</sup> 2024 (5 months timeline). The study explores the indigenous knowledge of herbal, social, and bricoleur methods used to cure nocturnal enuresis (NE) among the Yoruba people of Southwestern Nigeria. Two methods were identified, namely, the ladder climbing /*Oharan (Big Squirrel)* method and the *indigenous banana stem* method. However, for scientific and clarity

reasons, this paper focuses only on the identified banana stem method. The study went further to explore the procedures involved in the Herbal Social Bricoleur method, specifically focusing on the indigenous banana stem method among other broad spectrum of indigenous knowledge that are available for curing Nocturnal Enuresis 'NE' among the Yoruba cultural group of the southwestern geopolitical region in Nigeria.

The study was designed specifically to examine the procedures of how to prepare herbal medicines that could cure Persistent Primary Nocturnal Enuresis (PPNE), mainly caused by psychological or spiritual elements as explained by the indigenous entrepreneur/traditional healer, who invented the banana stem method, The banana stem method belongs to the Herbal Social Bricoleur group/class/category. The method is an invention that had been used for years by the social entrepreneurs in the study area. Herbal Social Bricoleur Entrepreneur is defined by the International Continece Society (2024) as a type of traditional healer who possesses the tacit indigenous knowledge of herbs with limited resources, but using such herbal remedy as a means to healing illnesses in the environment. This type of entrepreneurship is often referred to as social entrepreneurship when their works become collective or societal in practice (Opatola, 2023). However, in this study, we shall be referring to the person as Herbal Social Bricoleur Entrepreneur.

According to the information collected during interview from the entrepreneur, the Nocturnal Enuresis (NE) is peculiar to a situation characterised by the involuntary urination while asleep, which occurs during childhood up to 6 to 7 years old. This condition is mostly referred to as Primary Nocturnal Enuresis (PNE). That is a situation of immature Neurological system. It is studied as a class on its own (Motaharifard, Effatpanah, and Nejatbakhsh, 2020).

Nocturnal enuresis (NE), or 'bed wetting,' is a form of night-time urinary incontinence that occurs in younger children and adults. A diagnosis of NE can be socially turbulent and psychologically stressful for a child (Motaharifard, Effatpanah, and Nejatbakhsh, 2020) .

Globally, according to Opatola (2023), the use of herbal remedies/medicines through the administration of Herbal Social bricoleur method to cure PPNE is on the increase because by observation, more patients are reporting positive outcomes in the use of Herbal Remedies for the treatment of "NE" and other different types of illnesses. Therefore, this study is vital to bridging the gap between the popularity of herbal remedies and its practical use globally by patients in curing illnesses. It will also be useful in explaining herbal social bricoleur knowledge of curing bed-wetting in people including children and adults in Yoruba land of Nigeria.

The NE is of different cases. When enuresis occurs as a result of another illness, due to diabetes or infections or psychological or spiritual means; it is called secondary nocturnal enuresis (Walker, 2019). Enuresis occurs more commonly in boys than in girls; because boys are too playful, and may therefore accidentally damage any of the internal urinary organs during the playing time (Schloss, Ryan, Reid, and Steel, 2019).

There is another argument of strong genetic predisposition, emphatically saying that if both parents have enuresis, there is a 75% chance that their child will have it; but this possibility; decreases to 40% if only one parent has enuresis (Walker 2019). Whatever happens, it is

generally believed in science that it is a misconception to think of the impossibility of eliminating Persistent Primary Nocturnal Enuresis (PPNE) illnesses in children and adults through herbal applications. In Nigeria, and as well as around the world, despite the availability of several therapies for Persistent Primary Nocturnal Enuresis (PPNE) in children and adults including both male and female, Opatola (2023) claimed that no treatment has been 100% effective in curing the illness in Nigeria.

## **RESEARCH PROBLEM**

Schloss (2019), a lead researcher at Clinical Trials Coordinator at Endeavour College of Natural Health's Office of Research, emphasised that there is no single standard therapy or intervention to effectively manage Nocturnal Enuresis in the world. He asserted that there is insufficient evidence to support that one particular treatment has been found sufficient for the effective healing of the NE illness globally. Likewise, no alternative therapies have been proven effective for this condition too. It is therefore imperative to study the most common herbal medicines in Yoruba land used for the treatment of Persistent Primary Nocturnal Enuresis in children and in adulthood in order to ascertain the effectiveness of the treatment in healing NE.

## **RESEARCH OBJECTIVES**

The aims of this paper are to:

- ✓ identify herbal remedies that are common among the Yorubas in the Herbal Social Bricoleurs treatment of Persistent Primary Nocturnal Enuresis.
- ✓ ascertain the effectiveness of the identified Herbal Social Bricoleurs in the treatment of Persistent Primary Nocturnal Enuresis among the Yorubas
- ✓ raise the awareness globally about the importance of the identified Herbal Social Bricoleurs in the treatment of the NE among academicians globally and to address the significant social issues associated with Persistent Primary Nocturnal Enuresis (PPNE).

## **LIMITATIONS**

This study took 5 months because of the need to cover more patients and also study the preparation processes. The time of soaking the stuff in the banana stem was normally 3 months, but sunshine and day light periods are essential variables for the soaking to allow chemical changes to take place. The intensity of sunshine period is a potential confounding variable that could have influenced the study's results. Hence we tried to allocate 5 months to ensure that the soaking was satisfactory done.

It is unfortunate that despite the researchers' curiosity to find necessary studies of this type that have investigated the utilization of different kinds of plants in adults and children suffering from PPNE; none was found in the study area. All efforts that were made in visiting local kings' palaces that were ordinarily supposed to be in the custodian of these medicinal documents and also the community archives who were deemed to be in the custody of written materials concerning herbal remedies including the use of orthodox medicines or in combination of both types of remedies were futile with little or no result. Therefore, our discussion could not be

expanded to compare our findings with other studies on NE, particularly those that used herbal remedies in the study area.

This study is limited by the slow turn out rate of patients. Other reasons for lower turn out by patients were: Shyness arising from the stigma attached to bed wetting; being a taboo for people suffering from PPNE to say it in the public, and also the fact that the Yorubas are timid people when it comes to public appearance of a sick person to mention a few. For these reasons, we chose a period of five months to allow us survey larger numbers of patients; yet, despite the long duration of 5 months, we were only able to capture very limited number of patients. Probably, if the period had been extended longer, we would have gotten more patients to survey. However lack of sufficient research fund hinder us from extending the research period beyond the five months. Since there are no previous research study on the subject matter within the community, the sample size is enough as our starting point. This clarifies the rationale for selecting 20 participants. This sample size, is therefore justified being the first study of its type in the study area.

The poor turn out rate of patients, lack of enough fund, coupled with difficulty to cover longer distance were all reasons that informed us to select our target population by convenience. Hence our criteria for participants' selection is strictly limited to selection by convenience. Proximity to research center was one of the exclusion criteria.

## **LITRATURE REVIEW**

Few studies (Desmopressin, 2023; AskMayoExpert, 2023; (Motaharifard, Effatpanah, & Nejatbakhsh. 2020 and American Diabetes Association, 2023) have investigated the utilization of different kind of plants in children with NE with little or no effects including the use of orthodox medicines or in combination of both types of remedies. However, it was amazing to have seen the efficacy of the herbal remedy/medicine used in this study.

Studies (American Diabetes Association, 2023) had shown that outgrown Enuresis in childhood leading to adulthood (after many years) which is known as Persistent Primary Nocturnal Enuresis (PPNE) is becoming rampant in the global village. The International Continence Society (2022) described urinary incontinence or Enuresis or bed-wetting as the involuntary leakage of urine while Urinary incontinence is when a person cannot prevent urine from leaking out. This means a person urinates when they do not want to. It happens when control over the urinary sphincter is either lost or weakened. According to the Sunny (2022), one-quarter to one-third of men and women in the United States experience urinary incontinence as once claimed by the American Urological Association. Urinary incontinence is more common among adult women than adult men – due to menstruation, delivery of babies, to mention a few (Neveus et al, 2020). Neveus et al. (2020) asserted that enuresis has a major impact on the children of South Africa with an overall incidence above 14%. He further claimed that enuresis is very common throughout the whole world, though the national prevalence of enuresis is still unknown in Nigeria.

In literature, types and causes of NE could be found. For instance, according to Lauters, et al., (2022), Nocturnal enuresis is considered primary when a child has not yet had a prolonged

period of bed-wetting. Secondary nocturnal enuresis is when a child or an adult begins wetting again after having stayed dry for a period of time. Common cause is a neurological-developmental delay. Other causes include infections, psychological and spiritual issues (Hoecker, 2023 and Lauters, et al., 2022).

NE could also be caused by the loosening of external sphincter's muscular tone due to moisture in the muscle fibers. Loose muscle cannot contract strongly on the bladder's neck, so it fails to prevent the involuntary outflow of urine (Hoecker, 2023 and Lauters, et al., 2022). Another cause of NE was attributed to bladder weakness which decreases the intrinsic natural power of bladder to hold urine during sleep which put both children and elderly at risk for urine incontinence. However, NE was seen as one of the frequently seen problems during childhood and therefore needs the most effective treatments (Hoecker, 2023 and Lauters, et al., 2022) .

Globally, according to Opatola (2023) Treatment for nocturnal enuresis may involve combination of approaches, such as:

behaviour modification techniques: These may include (i) a schedule for using the toilet before bed, (ii) limiting fluid intake in the evening, and (iii) using an alarm to wake the child up and lifestyle changes (changes in the standard of living).

Other strategies being used to treat NE include:

- Medication techniques: such as desmopressin and imipramine may be used to help to control bed-wetting.
- Parental care: Parental help for a child (older than 7 years) with secondary bed-wetting are:
  - Restriction of fluid-intakes in the evening - by encouraging the child to drink plenty of fluids during the day to remain hydrated and reduce thirst in the evening.
  - Build voiding into the bedtime routine - Using the bedtime routine by making the child to urinate few hours before sleeping and then encouraging the child to go again before falling asleep.
  - Set alarm for overnight voiding - For example, a parent can set the alarm to wake the child at midnight; the child uses the toilet and then returns to the bed.
  - Using a moisture alarm - These are over-the-counter pads, also called bed-wetting alarms, are connected to a battery-operated alarm.
  - Using prescription medications - Occasionally, a child could be prescribed desmopressin as a short-term solution for bed-wetting. This medication retains water in the body, so the child's bladder does not get too full overnight.

The availability of the above methods unfortunately have not resulted in perfect and permanent cure of NE illness, hence consideration for the use of herbal remedies

The absence of a perfect western medicine in curing NE and the ever increasing belief in herbal medicine in curing NE is encouraging patronage of herbal medicine in Nigeria. Concomitantly,

researchers are now devoting more attention to broadening their understanding in indigenous knowledge.

Herbal medicine/remedy is defined by Lauters (2022) as a dietary supplement that is removed from a plant with medicine-like properties for the purpose of supplementing a diet. Herbs may also be called botanical products or phytomedicines. According to the Dietary Supplement Health and Education Act (1994), a dietary supplement contains one or more dietary ingredients, that is intended to be taken by mouth in form of pill, capsule, tablet, or liquid, and is labeled on the front panel as a dietary supplement. A shortage of any one of these dietary ingredients in the human body or damage of any part of the organs in the body will always result to illness. Herbal Social Bricoleur is defined by the International Continence Society (2024) as a type of entrepreneur that possesses the tacit knowledge of herbs by intervening at specific local situations in order to solve specific and episodic situations with limited resources. That type of entrepreneur becomes social when, collectively their works have become social/societal in practice. Herbal bricoleur/entrepreneur tends to work on a small scale with a limited, often local scope. Nocturnal enuresis (NE) or 'bed-wetting' on its own is a form of night-time urinary incontinence occurring in younger children or adults. A diagnosis of (NE) can be socially turbulent and psychologically stressful for a child (Lauters, et al., 2022). The most common strategies used by parents to manage NE are waking the child during the night to use the bathroom and limiting the child's water intake before going to bed (Motaharifard, Effatpanah, and Nejatbakhsh (2020), In some cases, according to the National Center for Complementary and Integrative Health (2023); behavioural or educational therapies for NE such as radiotherapy urotherapy or bladder retraining are widely accepted and considered as a mainstream treatment option for non neurotic lower urinary tract dysfunction in children. Pharmacotherapy also plays an ancillary role. All these techniques have proven ineffective to put an end to NE once and for all (Moretti, 2022).

This in essence justify the need for this study. Therefore, the study aimed to explain herbal social bricoleur knowledge of curing bed-wetting in people of Yoruba land of Nigeria. Hence, the study would divulge to the world the misconception of the impossibility of eliminating NE illnesses in human beings through herbal applications. This inventive herbal remedy could sufficiently put an end to NE/bed-wetting in patients. This study is designed towards this direction; to provide important information for the understanding of this new herbal remedy in the treatment of NE. It is aimed at determining the efficacy of the herbal combination in the treatment of the diseases in patients among the Yorubas' cultural group of the southwestern geopolitical region of Nigeria.

## **METHODOLOGY**

The paper adopted an explanatory research methodology to deepen our indigenous knowledge and also investigate how the illness is cured among the Yoruba cultural group in the southwestern geopolitical region of Nigeria. Multi-staged sampling technique was adopted in selecting the sample population. Data were collected from primary and secondary sources. The population available for the survey was 30 Patients. Primary data were collected from a sample of 20 people, stratified into 2 strata. First stratum consisted of 10 on going patients (selected by

convenience) who were suffering from the NE at the period when this study was being conducted. They were made up of 6 men and 4 women out of the population of 15 patients that were suffering from the illness. The 15 patients, just came at the time data was collected. 10 adult patients were marked down for the survey because they resided around the study area, Ife environs while the remaining 5 patients came from a far distance within Nigeria.

Second strata consisted of 10 ex-patients who were randomly picked from the home addresses left behind at their first registration with the traditional health center and traced to their homes for data collection to ascertain the perfect healing possibility of the herbal solution. This sample of 10 ex-patients were traced to their residences to confirm the healing power of the herbal remedy/medicine. The study adopted explanatory research design to allow for deep understanding of the topic that was made possible through information to be gathered for apprehension. The information needed were also collected from secondary sources and classified on Nocturnal Enuresis (NE) through credible published articles.

Subsequently, the data generated were analyzed using appropriate descriptive and inferential statistics.

### **The Research Design:**

The study adopted explanatory research design, using mainly percentages to allow for deep understanding of the topic and made possible thorough information to be gathered for apprehension. An in-depth interview was also conducted with the entrepreneur who invented the method many years ago at his home town

The information needed were collected and classified on Persistent Primary Nocturnal Enuresis (PPNE) through credible published articles.

### **Laboratory Set Up:**

The data observation timeline was done within a month. Most importantly, the treatment required special laboratory preparation. The materials needed include indigenous banana stem, alligator pepper, clay cooking pot and 3-months sunshine/daylight.

Alligator pepper (see App. 1), also called Pepper Coast, guinea grains or Grains of Paradise, is very much similar to ginger. It is said to be derived from the reddish-brown seeds of the *Aframomum melegueta* plant. According to Ifeanyi Ogbodo-Benson (2022), these seeds are a staple spice in West African cuisine, employed either in powdered form or as a whole. It has a spicy flavor that tastes like a mixture of ginger and pepper.

Most importantly, it is believed in Yoruba land that alligator pepper is commonly used in Traditional Medicine by the social Entrepreneurs, called healers or herbalists. The alligators' potent anti-inflammatory properties soothe ailments and relieve pain. Alligator pepper is used in herbal remedies to treat gastrointestinal disorders, and malaria, relying on its analgesic properties for relief (<https://www.researchgate.net/publication/>). It is strongly believed that alligator pepper be used through crushed seeds mixed into herbal concoctions or using it whole in daily nutrition. It is also said to be spicy. Teeming up with antioxidants and phytonutrients, It

is regarded as a power-house for fighting free radicals and bolstering well-being of patients (<https://www.researchgate.net/figure/>)

### **Preparation of the Herbal Remedy**

The method for preparing the herbal remedy, being its first time in the study area, has received serious attention in order to be detailed with exact measurements and conditions to ensure replicability elsewhere.

First step: The main material in the preparation of this herbal remedy is the Stem of a local indigenous small banana stand, commonly referred to in Yoruba language as *Iti Ogede Omimi*. The banana fruits on the stem would be cut off. Also the main stem, at about 3 feet off the ground would also be cut off, remaining the stump on the ground. This stump would be left on the same spot for at least three months to soak during the hot tropical climate. The chemical process of soaking is very vital to the preparation of this herbal remedy. This period for the chemical process of soaking may vary with climatic temperature. After the chemical process of soaking for a period of 3 months, the soaked stem molecules/stuff at the center of the stem would be scraped out with washed and clean hand or with big clean spoon into a clean bowl to be kept at room temperature in an open room for at least 4 weeks in summer season to dry up. The duration varies with season, meaning it will be longer during wet season.

Step 2: The scraped materials (from the soaked banana stem) was placed inside a mud pot or cooking pot with one whole alligator fruit and then placed on fire. The two materials were continuously stirred together till the alligator was burnt together with the scraped materials. Then the materials were removed from fire and grounded together, while still hot into powdered form. This powder substance was packed inside a clean container for protection against bacteria. One teaspoon full of 5ml would be filled with the powder substance and then mixed with one 10ml table spoon of light palm oil. This mixture would be given to the patient who would be leaking the mixture once in the night after supper, but just before going to sleep for 7 nights consecutively.

### **Analysis of Findings and Discussion**

The findings on the first objective showed that two indigenous methods were identified under the Herbal Social Bricoleurs treatment, namely, the *ladder climbing method/Oharan (Big Squirrel)* method and *the indigenous banana stem* method. However, for scientific and clarity reasons, this paper focuses only on the the indigenous banana stem method. This provided an important contribution to the understanding of potential new treatments for NE condition. Future research should be able to focus on the efficacy of *Oharan (Big Squirrel)* method.

In fulfilling the second objective as regards ascertaining the effectiveness of Herbal Social Bricoleurs in the treatment of Persistent Primary Nocturnal Enuresis among the Yorubas. This

S/N	SEX	FREQ	%	MDK	GBONG	ODEOM	OSU
1.	MALE	12	60	8	1	1	2
2.	FEMALE	8	40	5	1	1	1
	TOTAL	20	100	13	2	2	3

Source: Field Study, 2024

**TABLE 1: SEX AND FREQUENCY OF RESPONDENTS**

study analysed the data received from all the 20 respondents (See Table 1) who were surveyed comprising of 15 on going patients (6 males and 4 females) who received this banana stem treatment during the surveying period and 10 selected ex-patients (made up of 6 males and 4 Females who had been completely healed with no more PPNE occurring in the patients again.

It was amazing to have seen the efficacy in the use of this type of herbal medicine used in this study because (all traces of enuresis were permanently corrected):

- It means that the bladders of the respondents that were initially weakened have been corrected and no more weakened by increasing the intrinsic natural power of bladder to hold urine during sleep and put the patients at no risk for urine incontinence again.
- The control over the urinary sphincter has been regained back;
- Loose muscles have been energised strongly on the bladder’s neck that now prevented the involuntary outflow of patients’ urine. There were no more persistent primary nocturnal enuresis among the respondents who participated in this study.

It is therefore expected that the success story of this study would raise the awareness globally about the importance of herbal remedies in the treatment of the NE among academicians globally. This herbal remedy would also address the significant social issues associated with Persistent Primary Nocturnal Enuresis (PPNE).

**CONCLUSION AND FUTURE TREND OF RESEARCH:**

Few studies (Desmopressin, 2023; AskMayoExpert, 2023; (Motaharifard, Effatpanah, & Nejatbakhsh. 2020 and American Diabetes Association, 2023) have investigated the utilization

of different kinds of plants in children with NE with little or no effects including the use of orthodox medicines or in combination of both types of remedies.

This study was conducted to investigate the use of indigenous medicinal knowledge in treating NE among the Yorubas in the south western Nigeria. The study was undertaken between February 2<sup>nd</sup> 2024 and June 30<sup>th</sup> 2024 (5 months timeline) A survey was conducted among 20 selected patients with the aim to explain the procedural ways of preparing herbal medicine that could permanently cure PPNE with the assurance of determining the efficacy of the herbal combination in the treatment of the NE disease in adults. The findings were favourable with all 20 patients permanently healed and cured of NE when treated with this indigenous banana stem herbal remedy. It was amazing to have seen the efficacy of the herbal remedy/medicine used in this study. The study concluded that there is efficacy of treatment in the use of this Yoruba traditional herbal remedy for the treatment of NE.

The prevailing low usage and unpopularity of this herbal remedy, to cure NE, suggests there is still need to continue to make research into the applicability of the herbal remedy in more cultural groups in the world so as to confirm its effective use. Such studies would contribute and provide enough evidence to support its continual use or otherwise in its application to cure NE illness so that it could continue to benefit humanity worldwide.

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App. 1 Alligator pepper

