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African naturopathic education: Ghana's model using competency-based curriculum

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ABSTRACT

Background: Despite the over 62 years of Naturopathy's existence in the Ghanaian jurisdiction, no single tertiary program in Naturopathy or Complementary and Alternative Medicine is taught. The practice has not been streamlined and properly structured. Those who engage in the Naturopathic trade mostly receive their education through correspondence from unrecognized and unaccredited foreign schools that teach a limited aspect of naturopathy.

Objective: Following the development and approval of two Naturopathic programs; The Higher National Diploma (HND) for training Naturopaths and Bachelor of Technology in Naturopathy and Holistic Medicine, a 5-year program for Naturopathic Physicians, this paper provides a critical evaluation of the curricula approved by the Commission for Technical and Vocational Education and Training (CTVET) in Ghana.

Materials and Methods: This paper employs a sequential two-stage qualitative process. In phase one, the two curricula were submitted to the World Naturopathic Federation (WNF) Canada, for evaluation. Phase two involved a document analysis using the curriculum recommended by the World Health Organization (WHO), the World Naturopathic Federation (WNF), and the South African Naturopathic curriculum. An in-depth evaluation and comparison with the Ghanaian program were conducted, together with abstracted WNF responses which were then analyzed thematically.

Results: After the necessary recommendations by WNF were adopted. The two Ghanaian curricula met the international standard. The recommendations also strengthened the mandatory general area of competence in Naturopathic training. The Ghanaian Bachelor's in Naturopathy has total clock hours of 5,979, which surpasses the South African degree in Naturopathy(5,950) clock hours.

Conclusion. The Ghanaian naturopathic mandatory and elective subjects in the curricula meet the international standards. Issues raised by World Naturopathic Federations (WNF) were all addressed to strengthen the program.

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1. Introduction

Medicine has evolved, and as such, the practice of naturopathy in the past cannot be likened to Naturopathy in this modern era. Due to this, there is a need for standardized structuring in modern Naturopathy, especially in the context

of African Naturopathy. Modern Naturopathy is science-based. The Biomedical component of modern Naturopathy cannot be underestimated, as it plays an integral role in the recognition of Naturopathic practitioners and the integration pathway into the Ghanaian healthcare space and Africa's entirety. It is newsworthy to find that the more educated a person is, the more likely he/she will take herbal medicine in Ghana.¹ Once educated people are showing interest in

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Naturopathic remedies, there is the need for practitioners to improve themselves in education to enhance service delivery.

However, this is not the case as no tertiary program in Naturopathy or complementary and Alternative medicine exists in Ghana. With regards to Herbal Medicine, as a result of the passage of the Traditional Medicine Act 2000(Act 575), Kwame Nkrumah University of Science and Technology (KNUST) in the Ashanti region of Ghana has been offering the Bachelor of Science in Herbal Medicine for over a decade and remains the only tertiary program in Herbal Medicine. Graduates from the University in Herbal Medicine are integrated into the government Hospitals. Integration is currently being championed in Ghana²⁻⁴ and several developments have been made in government hospitals with herbal departments.⁵

This is not the case for alternative and complementary medicine practices such as Naturopathy, homeopathy, and chiropractic. The problem stems from the fact that these practices are considered foreign traditional medicines, which have been imported into the country. Hence, attention is not being paid to promoting them. This notwithstanding, government in 2010^{6,7} provided recognition and a new bill for promulgation is under consideration.

The new bill defines Naturopathy in Ghana as: “a system of healthcare usually drugless, which uses a wide variety of therapies including hydrotherapy, heat, massage, nutritional supplements, and herbal medicines with the purpose of stimulating optimum functioning of the whole person and supporting the person’s own innate healing capacity.” This means the practice of naturopathy is a diverse or eclectic⁸ form of primary health care.

In Ghana, modern Naturopathy is gaining huge promotion, and practitioners in training have to contribute to research and infuse modern scientific methods into clinical practice. Naturopathic medicine has also had a National Occupation Standard for training developed at the tertiary level, with two program curricula approved under the Commission for Technical and Vocational Education and Training (CTVET). The two programs are the Higher National Diploma (HND) and Bachelor of Technology (BTech) in Naturopathy and Holistic Medicine for the training of two different cadres of practitioners; Naturopaths and Naturopathic Physicians. It is common knowledge that there cannot be any effective legislation without education. Education aids standardization, thus the need for these curricula.

In other jurisdictions such as South Africa, legislation on naturopathic medicine has worked well and has led to uniform standards of education and practice.⁸ Additionally, regulation in those jurisdictions has improved integration and naturopathic cooperation with all other branches of medical science.⁸ When this happens, there is some level of confidence patients have in receiving naturopathic care

from an educated practitioner.⁸

Education and regulation of the naturopathic profession depend on what is practiced in other jurisdictions⁹ though calls have been made for uniform regulation that recognizes naturopathy as a medical system. Also, it has been found that in countries that have regulatory frameworks, one is expected to set high standards and show consistency in the training of such practitioners.⁹

Due to some gaps in naturopathic education,¹⁰ Ghana’s version of Naturopathic education is based on competency-based training (CBT) which is believed to more likely close the gaps and improve students’ naturopathic medical knowledge, to place Ghana on the global map of modern naturopathy. Modern Naturopathic practice cannot be underestimated. It is not surprising that the Committee of the German Association for Medical Education found that medical education in the field of naturopathy and complementary and integrative medicine has the potential to develop comprehensive core medical competencies.¹¹ As Naturopathy gets recognition and standardization, it is pertinent that we move away from the practice where naturopaths learned their skills via a loose combination of self-education and an apprenticeship-style system.¹²

Although in Ghana, some people are against the academization of Naturopathy and the medical naturopathy curriculum,¹³ it is the way to go to gain recognition and credibility in the healthcare system. These people believe that Naturopathy should be practiced in its original stance and should be devoid of school.

As Ghana prepares to commence its first nationally accredited program being held in the Nyarkotey University College of Holistic Medicine and Technology (NUCHMT), institutions should also concentrate on advocating for a naturopathic lifestyle to be taught in the schools. This means that in this case, if the study of naturopathy starts in the Ghanaian education system, then the right lifestyle, appropriate diets, and prevention from illness would be taught from childhood, and in near future, our country would be healthy and less diseased in the world.¹⁴

To meet this standard in naturopathic education, there is a need to compare and benchmark curricula. This process provides the road map for recommendations and suggestions.¹⁵ It is against this background that this paper sought to provide a critical evaluation of the curricula approved by the Commission for Technical and Vocational Education and Training (CTVET) in Ghana, compare the Ghanaian curricula against the WHO, WNF, and South African Naturopathic standards, and to critically examine whether Ghana is on the right path in naturopathic education and ultimately meet the minimum requirements.

2. Materials and Methods

This paper used a sequential qualitative methodological approach, consisting of two phases. In the first phase,

the two Ghanaian curricula; Higher National Diploma and Bachelor of Technology in Naturopathy and Holistic Medicine were submitted to the WNF, Canada, for assessment and review. The curricula were sent through email and feedback was also received through email in 2021. Further issues raised from their end were addressed and resubmitted.

The second phase entailed a comparative document examination and analysis based on the proposed WHO Naturopathic training benchmark,¹⁶ WNF, curricula recommendation,¹⁷ the South African Naturopathic curriculum,¹⁸ and the Ghanaian Bachelor's naturopathic curricula approved by CTVET. The feedback from WNF was analyzed thematically and the curricula were compared.

3. Results

3.1. Phase 1

Feedback from the WNF's review of the curricula (HND and Bachelors of Technology Naturopathy and Holistic Medicine in Ghana)

The committee that reviewed and provided feedback on the Ghanaian programs included:

1. Dr. Iva Lloyd, ND (President of the WNF, Canada)
2. Tina Hausser, HP, Naturopath (1st Vice-President of the WNF, Spain)
3. David Casteleijn, Naturopath (2nd Vice-President of the WNF, Australia)
4. Amie Steel, Naturopath, Ph.D. (a representative from ARONAH, Australia)
5. Jill Dunn, Naturopath (Chair of the WNF Professional Mapping Committee, New Zealand)
6. Stephen Farrugia, Naturopath (Treasurer of the South African Naturopathic Association (SANA))
7. Joanne Yanez, ND (Executive Director of AANMC, USA)
8. Amanda Bose ND (NUHS, USA)
9. Anne Gimalac, Naturopath (Ecole Professionnelle Supérieure de Naturopathie (EPSN), Switzerland)

3.1.1. WNF's role in naturopathy education

WNF is making a giant stride in helping in the analysis of the naturopathic educational programs globally. Based on extensive information the federation has gathered so far, it is newsworthy to note that they have produced three documents outlining the status of naturopathic education globally. It is within the context of the analyses and reports that WNF has collected and based on this provided the Ghanaian curricular feedback and areas for consideration. Based on this framework, they included an overview of the categories of naturopathic knowledge and the hours that are generally included, based on the length of the naturopathic program.

3.1.2. Naturopathic knowledge

The full breadth of naturopathic knowledge covered in naturopathic educational programs includes:

1. Naturopathic history, philosophies, principles, and theories.
2. Naturopathic medical knowledge, including basic sciences, clinical sciences, laboratory and diagnostic testing, naturopathic assessment, and naturopathic diagnosis.
3. Naturopathic modalities, practices, and treatments.
4. Supervised clinical practice.
5. Ethics and business practices.
6. Research.

WNF feedback is broken down into the following areas:

1. Overall feedback on the naturopathic program structure
2. Curriculum feedback

3.2. Overall feedback on the naturopathic program structure

WNF encourages the Ghanaian team to include additional information to outline the structure and implementation of the program more clearly. For example:

1. Indicate the number of years for each program and what courses are generally covered in each year.
2. Clarify what aspects of the curriculum are face-to-face, self-directed, and/or via telemedicine
3. Clarify the pre-requisites for entry in the program(s)
4. It may be helpful to list the qualifications of the instructors, especially for the naturopathic aspect of the curriculum.
5. We recommend that you provide more clarity on the rationale for the programs and what the main distinction is between the two programs.

3.3. Curriculum feedback

The conversion of credits to hours is based on the first information submitted: 1 credit = 30 hours.

The following are some general comments and feedback on the curriculum of the programs that have been provided:

- We encourage you to ensure that the hours/credits dedicated to each aspect of the naturopathic curriculum are more in line with the table above and that it is outlined by categorization, as outlined below:

Table 1: Length of naturopathic program per curriculum aspect average hours and percentage based on length of naturopathic program

Length of Naturopathic Program	Naturopathic History, Philosophies, Principles and Theories	Naturopathic Medical Knowledge	Clinical Practice	Naturopathic Modalities
Under 2000 hrs	177 (10%)	426 (24%)	409 (24%)	678 (39%)
2000 – 2999 hrs	258 (11%)	504 (22%)	480 (21%)	832 (36%)
3000 – 3999 hrs	313 (9%)	1076 (32%)	706 (21%)	1114 (33%)
4000+ hrs	358 (8%)	1410 (31%)	1122 (24%)	1561 (34%)

Source: WNF education and credentials (2018)

Table 2: Hours and credentials of naturopathic programs globally

Credentials	Diploma in Naturopathy	Professional Diploma in Naturopathy	Three-year professional degree in Naturopathy	Four-year professional degree in Naturopathic Medicine	Two-year Naturopathic Bridge Program
Recommended Title(s)	Traditional Naturopath	Naturopath / Licensed Naturopath	Naturopath	Naturopathic Doctor	Naturopathic Doctor (for medical professionals)
Educational Level Program examples	ISCED level 4 ENU (Uruguay)	ISCED level 5 CENATHO (France) ISNAT asbl (Belgium)	ISCED level 5 or 6 Wellpark (NZ) Philippus Thuban (Spain)	ISCED level 6 Bastyr University (USA) BNYS (India)	ISCED level 6 Bridge program at CCNM (Canada)
Total number of minimum hours recommended	1,500 hours	2,500 hours (includes previous level)	3,500+ hours, minimum three-year program (includes previous level)	4,000+ hours, minimum four-year program (includes previous level)	2,200 hours
Pre-requisites	High school equivalency (ISCED level 3)	High school equivalency (ISCED level 3)	High school equivalency (ISCED level 3)	May require a first professional degree (minimum ISCED level 4), plus pre-requisites such as biomedical sciences and humanities	Professional degree – i.e., Doctor of Chiropractic, Medical Doctors, Osteopathic Doctor
Biomedical sciences (basic and clinical sciences)	Recommendation: 400+	Recommendation: 500+	Recommendation : 1,000+	Recommendation: 1,200+	Not required, if covered in their prerequisite program
Social Sciences	Recommendation: 50+	Recommendation: 100+	Recommendation : 200+	Recommendation: 200+	Recommendation : 100+
Naturopathic History, Philosophies, Principles & Theories	Mandatory – 150 hours	Mandatory – 150 hours	Mandatory: 150 hours	Mandatory – 180 hours	Mandatory – 180 hours
Naturopathic Assessment and Diagnosis	Recommendation: 150+ hours	Recommendation: 150+	Recommendation : 200+	Recommendation: 300+	Recommendation : 300+
Modalities	Recommendation: 400+	Recommendation: 800+	Recommendation : 800+	Recommendation: 800+	Recommendation : 800+
Clinical Practice	Recommendation: 400+ hours	Recommendation: 400+ hours	Recommendation : 600+ hours	Recommendation: 1200+ hours	Recommendation : 1200+ hours

Source: WNF education and credentials (2018)

1. *Naturopathic History, Philosophy, Principles, and Theories*: there is a concern that there are not enough hours dedicated to naturopathic medicine. According to the document WNF Education and Credentials, the recommendation from the WNF is that the required hours for this subject are at least 150 hours (5 credits).
2. *Naturopathic medical knowledge*: this area seems well represented in the curriculum with 57% in the Diploma and 76% in the Bachelor program, but we encourage you to ensure that the percentage of hours spent on medical knowledge is balanced with the total number of hours. and that the naturopathic medical knowledge content is integrated into the naturopathic philosophy and principles.
3. *Naturopathic modalities, practices, and treatments*: some aspects of the core naturopathic treatments (applied nutrition, clinical nutrition, herbal medicine, lifestyle counselling, hydrotherapy, naturopathic physical medicine) should be mandatory as part of the program. There is a concern that there is a broad list of naturopathic modalities, therapies, and practices, but insufficient credits dedicated to anyone, especially the modalities that require more in-depth studies to ensure competency.
4. *Supervised clinical practice* does not seem to be included in the program. It is an important aspect of a naturopathic educational program. Please clarify the hours and format for supervised clinical practice.
5. *Ethics and business practices* do not generally encompass a lot of credits (hours), but it would be beneficial to include them.
6. Research would be best added, especially to the Occupational Standards for Naturopathy and Holistic Health Sciences program and linked throughout the naturopathic program including the clinical program.

Please clarify the number of elective credits that are required for successful completion of each aspect of the program.

Please clarify the prerequisites and co-requisites associated with each program.

3.4. Phase 2

3.4.1. Comparison of curricula

A critical study of the documents revealed that the curriculum could be divided into four major categories which are: basic sciences, clinical sciences, naturopathic studies, and clinical training.

We abstracted them in Table 3.

We found in the curriculum comparative analysis that the Ghanaian two programs' subjects or general area of competencies were in the same vein as the subjects recommended by the WHO,¹⁷ WNF,¹⁹ and the South African Naturopathic program.²⁰ The basic sciences recommended by WHO and WNF are limited as

compared to the Ghanaian and SA curriculum. For instance, the Ghanaian curriculum offers wider basic sciences subjects apart from anatomy, physiology, and pathology as compared to the South African curricula. Other subjects such as Chemistry and Biochemistry, pharmacology and pharmacotherapeutics, Histology & Embryology, Medical terminology, Laboratory investigation, Medical imaging, Biostatistics and Bioinformatics, Neuroscience, Microbiology, and Parasitology were included. The in-depth knowledge of the bioscience subjects provides a good foundation for Naturopathic professionals to be abreast with medical knowledge.

In the clinical sciences, the Ghanaian curriculum also offered additional areas such as public health and health promotion. mandatory subjects such as Patient history taking, clinical assessment, and Physical examination are found in WHO, WNF, and SA curricula.^{17,20} The Ghanaian program has additional first aid and emergency medicine and internal medicine and these subjects are also found in the South African curriculum.²⁰ The Ghanaian curriculum also has some generic subjects as mandated by the regulator such as Information Communication Technology (ICT), English language, African studies, and Mathematics as foundational programs. Apart from that, other subjects such as Healing systems, African Naturopathic Pharmacy, Medical humanities, Nutrigenomics and Nutrigenetics, Stem Cell Biology and Regenerative Medicine, Functional and integrative medicine, and medical law and ethics address the Ghanaian Naturopathic craft.

Juxtaposing the content of the program in WHO and WNF recommendations, we found that the Ghanaian curricula surpass the minimum recommended. The minimum supervised clinical training was also met. However, we found that the total clock hours in the Ghanaian program are 5,979 for the bachelor's and 5,950 SA Curriculum. The difference is 29 clock hours which surpasses the South African Naturopathic program.

4. Discussion

In using medical terminology, Naturopathy can be interpreted as *Natura* (nature) and *Pathos* (passion, what one feels), naturopathy is the great synthesis of natural methods of health, well-being, and quality of life.²¹ The first draft curricula were submitted to the WNF for review. WNF found that the Higher National Diploma in Naturopathy and Holistic Medicine in Ghana appears to be the same as the Diploma in Naturopathy program which is a model being offered by Escuela de Naturopatía del Uruguay, (Uruguay)²² with total training hours of 1,500.

The Bachelor of Technology Naturopathy and Holistic Medicine Ghanaian program appears to be the same as the Professional Diploma in Naturopathy being offered at CENATHO (France)²¹ and ISNAT asbl (Belgium)²³ with total training hours of 2,500.

Table 3: A comparison of naturopathy curricula

WHO	WNF	South African curriculum (Bachelor)	Ghanaian curriculum(Bachelor)
<p>Basic Science: Anatomy Physiology Pathology</p>	<p>Basic Sciences: Hours – Basic + Clinical Sciences combined: 1 200 + Anatomy Physiology Pathophysiology</p>	<p>Basic Sciences: Hours – 2 000 Biotechnology Chemistry Medical bioscience Medical Microbiology Pathology Pharmacology Physics</p>	<p>Basic Sciences: Hours- 1,632 Anatomy Physiology Pathology Chemistry and Biochemistry Pharmacology and Pharmacotherapeutics Parasitology & Microbiology Neuroscience Histology & Embryology Biostatistics and Bioinformatics Medical terminology, Laboratory investigation, Medical imaging</p>
<p>Clinical Sciences: Patient history taking Clinical assessment Physical examination First aid and emergency medicine Hygiene and public health</p>	<p>Clinical Sciences: Hours - Basic + Clinical Sciences combined: 1 200+ Patient history taking Clinical assessment Physical examination</p>	<p>Clinical Sciences: Hours – 900 Patient history taking Clinical assessment Physical examination Emergency medicine General medicine</p>	<p>Clinical Sciences: Hours-612 Patient history taking Clinical assessment Physical examination First Aid & Emergency medicine Internal medicine Public Health and Health Promotion</p>
<p>Naturopathic Studies: Naturopathic history and practice Nature cure Nutrition Hydrotherapy Botanical medicine Homeopathy and tissue salts Bach flower therapy Stress management Lifestyle counselling Light therapy Electrotherapy Iridology Soft-tissue therapies Aromatherapies Acupuncture</p>	<p>Naturopathic Studies: Hours – 950 minimum Naturopathic history, principles and philosophy Clinical nutrition Applied nutrition Hydrotherapy Botanical medicine Homeopathy Counselling and naturopathic Psychothera-py Pharmacology Y Energetic Therapies Physical Manipulation Massage and soft-tissue techniques.</p>	<p>Naturopathic Studies: Hours – 1 200 Naturopathic Principles and philosophy Nutrition Hydrotherapy Botanical medicine Tissue salts Bach flower therapy Stress management Lifestyle counselling Light therapy Electrotherapy Iridology Soft-tissue therapies Aromatherapies Thermal therapy</p>	<p>Naturopathic Studies: Hours-1,581 Naturopathic principles, Theories & Philosophies Clinical Naturopathic Medicine Traditional Chinese(Acupuncture) and Oriental Medicine Clinical Nutrition Naturopathic Assessment and Diagnosis Naturopathic modalities, practices, and treatments Detoxification, Hydrotherapy, and Toxicology Applied Nutrition and Medicinal Food Science Naturopathic Physical Medicine Homeopathy Herbal Medicine Pharmacognosy Bach flower remedy Therapeutic Exercise and Massage Functional and Integrative Medicine Mind-Body Medicine African Naturopathic Pharmacy Ayurveda</p>
<p>Clinical Training: Hours – 400+</p>	<p>Clinical Training: Hours – 1 200+</p>	<p>Clinical Training: Hours – 1 200+ Additional subjects: Hours – 650 Computer literacy Primary health care Principles of natural healing English for educational development Complementary healing systems Interdisciplinary health promotion Health psychology Study of human development</p>	<p>Clinical Training: Hours- 1,440+ Additional Subjects: Hours- 612 African studies ICT Medical law and Ethics Research Methods Thesis writing Nutrigenomics & Nutrigenetics Entrepreneurship and Health Administration Medical humanities Health Communication and lifestyle counselling Healing systems of the World Stem Cell Biology and Regenerative Medicine,</p>
<p>Total number of hours of naturopathic training: 1500+ hours</p>	<p>4000+ hours</p>	<p>5950 hours</p>	<p>5,979 hours</p>
<p>WHO = World Health Organization; WNF = World Naturopathic Federation. SANC = South African Naturopathy curriculum.</p>			

WNF further provided six key areas for consideration which we examined and addressed to enhance the final curricula before submission:

4.1. Naturopathic history, philosophy, principles, and theories

There is a concern that there are not enough hours dedicated to naturopathic medicine. According to the document WNF Education and Credentials, the recommendation from the WNF is that the required hours for this subject are at least 150 hours (5 credits).

4.1.1. Our response

The Ghanaian team addressed this and extended the naturopathic history, philosophy, principles, and theories in the implementation to cover the recommendation by WNF. The total credit in the Ghanaian curriculum for the HND is 204 hours. The bachelor has a total of 274 hours. This supersedes the WNF recommendation for a naturopathic program.

4.2. Naturopathic medical knowledge

This area seems well represented in the curriculum with 57% in the Diploma and 76% in the Bachelor program, but we encourage you to ensure that the percentage of hours spent on medical knowledge is balanced with the total number of hours. and that the naturopathic medical knowledge content is integrated into the naturopathic philosophy and principles.

4.2.1. Our response

In the first draft, the WNF found that the Ghanaian HND has 57% naturopathic knowledge and 76% naturopathic knowledge in the bachelor. We have updated the curricula which place the HND to have total mandatory course credits of 139 with clock hours of 2,363. Total elective credits (8) of 24 and clock hours of 408. Total clinical credits have 56.5 and clock hours 960. Hence, the total credit requirements to graduate from HND is **219.5** and clock hours of **3,731**. This now moved the Ghanaian HND from the ENU (Uruguay) model and supersedes the three-year professional degree in Naturopathy model being offered by Wellpark (NZ)²⁴ and Philippus Thuban (Spain)²⁵ which has 3,500+ hours, minimum three- year program (includes the previous level)[Tab 2]

4.3. Naturopathic modalities, practices, and treatments

Some aspects of the core naturopathic treatments (applied nutrition, clinical nutrition, herbal medicine, lifestyle counseling, hydrotherapy, naturopathic physical medicine) should be mandatory as part of the program. There is a concern that there is a broad list of naturopathic modalities, therapies, and practices, but insufficient credits

are dedicated to anyone, especially the modalities that require more in-depth studies to ensure competency.

4.3.1. Our response

In addressing this, the Ghanaian naturopathic curricula included the recommendation and included applied nutrition, clinical nutrition, herbal medicine, lifestyle counseling, hydrotherapy, and naturopathic physical medicine) as part of the core mandatory program. The HND has a total core mandatory of 850 clock hours and 408 elective clock hours. This gives the total clock hours of 1258 hours which supersedes the WNF recommendations [Tab 2] of 800+ hours.

The bachelor has a total core mandatory of 1422 clock hours and elective clock hours of 612. This gives the total clock hours of 2, 034 hours which supersedes the WNF recommendations [Tab 2] of 800+ hours for a four-year naturopathic program.

4.4. Supervised clinical practice

Does not seem to be included in the program. It is an important aspect of a naturopathic educational program. Please clarify the hours and format for supervised clinical practice.

4.4.1. Our response

In our first draft, we did not include the supervised clinical training aspect. This is because the occupational standards only contained the academic subjects to be taught. However, in the implementation, we included clinical training. The HND has total credits of 56.5 and clock hours of 960. This supersedes the WNF recommendations of 400+ for Diploma, Professional Diploma, and three-year professional Degree programs in Naturopathy.²

The Bachelor has total credits of 84.7 and total clock hours of 1,440 in the Ghanaian program. This also supersedes the WNF recommendations of 1,200+

4.5. Ethics and business practices

Do not generally encompass a lot of credits (hours), but it would be beneficial to include them.

4.5.1. Our response

We did not include this in the submitted occupational standard. This is because the generics were not supposed to be part of the standards according to the Commission for Technical and Vocational Educational and Training(CTVET) policy. It is added after the approval of the curriculum.

Hence, we added ethics and business practice into the curricula which entails medical law and ethics, Entrepreneurship and Health Administration, Health Communication, and lifestyle counseling. This gives total

clock hours of 115.

Research would be best added, especially to the Occupational Standards for Naturopathy and Holistic Health Sciences program and linked throughout the naturopathic program including the clinical program.

4.5.2. *Our response*

We did not include this in the submitted occupational standard. This is because the generics were not supposed to be part of the standards according to the Commission for Technical and Vocational Educational and Training (CTVET) policy. It is added after the approval of the curriculum.

The HND has total clock hours of 442 and the Bachelor's has total clock hours of 952 of research and thesis writing.

- Please clarify the number of elective credits that are required for successful completion of each aspect of the program.

4.5.3. *Our response*

This was done in the curricula implementation

- Please clarify the prerequisites and co-requisites associated with each program.

4.5.4. *Our response*

Academic entry requirements vary from program to program and are advertised on the University website and in other media. The University ensures that entry requirements conform to standards set by the Ghana Tertiary Education Commission (GTEC) and various regulatory and professional bodies. The University's admission requirements are as follows:

4.6. *West African senior school certificate examination (WASSCE)*

An applicant must have credit passes (A1-C6) in core English, core Mathematics, and either core Integrated Science or Social Studies and three elective subjects, with an overall aggregate score of Thirty-six (36) or better. In addition, candidates must satisfy the specific requirements of the relevant Faculty/School. The entry is at Level 100:

4.7. *Senior secondary school certificate examination (SSSCE)*

An applicant must have credit passes (A-D) in core English, core Mathematics, and either core Science or Social Studies and three elective subjects, with an overall aggregate score of Twenty-four (24) or better. In addition, candidates must satisfy the specific requirements of the relevant faculty/school. Entry is at Level 100.

4.8. *General certificate of education (GCE) ordinary and advanced levels*

An applicant must have at least credit passes in 5 subjects (including English Language and Mathematics at the GCE Ordinary Level and at least 3 passes at the GCE Advanced Level. One of the Advanced Level passes must be grade 'D' or better. A pass in General Paper must also be obtained. Entry is at Level 100.

4.9. *Professional qualifications/tertiary diplomas (Entry at levels 200 and 300)*

The level of placement of professional certificate and tertiary level diploma holders will depend on the assessment of their certificates or diplomas about the program desired. All professional certificate and tertiary level diploma holders must have either G.C.E. "O" Level credit passes in English Language and Mathematics or SSSCE/WASSCE credit passes in English Language and Core Mathematics to qualify for admission. The placement level of candidates will depend on the assessment of their certificates by the relevant Faculty/School or Department.

4.10. *BTech Top up*

HND Naturopathy and Holistic Medicine holders will be allowed to do a one-year top-up program

4.11. *Admission through mature students' entrance examination*

The candidate must be at least 25 years old by 31st December of the year preceding the examination. A certified copy of the birth certificate is required. The date of issue of the birth certificate should not be less than five years from the date of the completion of the admission forms. The submission of fraudulent certificates is grounds for withdrawal at any point in a student's enrolment.

Mature Students' Entrance Examinations consist of a General Paper for all candidates and two papers in the area(s) of specialization desired.

4.12. *Applicants with foreign certificates*

Foreign applicants must have qualifications equivalent to the above to be considered for admission. Their results must also be translated into English and they should be able to read and write in English. Additionally, all foreign certificates are validated by the National Accreditation Board. Applicants may also be required to pass an entrance examination/interview.

In addition to the general admission requirements, Schools, Faculties and Departments may have special entry requirements. The academic catalogs of the Schools and Faculties must be consulted for up-to-date information.

4.13. Two-Year bridge naturopathic program

Nurses, medical practitioners, and allied health workers may receive course exemptions and complete the degree in three years.

5. Conclusion

The total duration of the Bachelor's program is 5- years including clinical training and the HND is 4 years. The HND program in Naturopathy and Holistic Medicine has a total credit requirement of 219.5 and 3,731 total clock hours for completion including supervised clinical training. The Bachelor's also has a total credit requirement of 316.7 and 5,979 total clock hours for completion including supervised clinical training. This means that after considering all the WNF recommendations and improving the two programs; the Ghanaian HND and Bachelor in Naturopathy and Holistic Medicine supersedes the WNF recommendations for a three-year professional degree in Naturopathy and a four-year professional degree in Naturopathic Medicine (Table 2]. The two programs surpass the World Health Organization (WHO) benchmark^{17,20} for Naturopathy training. The Ghanaian Bachelor's program is also close to the South African total clock hours of Naturopathy training.²⁰

Due to the changing trend in Naturopathy and medical education, the curricula per the Commission for Technical and Vocational Education and Training (CTVET), regulator mandates that the occupational standard has to be reviewed every five years. This we believe would allow other experts to make input in the future to place Ghana on the global map of naturopathic education and practice. The occupational standard is well developed to train Naturopaths (HND) and Naturopathic Physicians (Bachelors) with a different scope of practice and has the competencies the naturopathic professionals are to demonstrate before graduation.

6. Authors' Contributions

The authors confirm that both Prof. Raphael Nyarkotey Obu and Lawrencia Aggrey-Bluwey contributed by conceptualizing the study, interpreting the data, preparing this manuscript, and proofreading.

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8. Conflict of Interests

None.

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