The Clinical Decision-Making Process of Emilio Aguinaldo College – Manila B. S. Physical Therapy Interns Handling Adult Patients with Neurologic Disorders

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ABSTRACT

The objective of this study was to describe the clinical decision making (CDM) process of Emilio Aguinaldo College – Manila (EAC – Manila) Bachelor of Science in Physical Therapy (BSPT) interns handling adult patients with neurologic disorders in order to produce a context-based study about students in the local school setting. A case study was performed using individual interviews with enrolled BSPT interns who were purposively selected based on their experiences of handling patients with neurologic conditions. Diagrams drawn by participants about CDM were also reviewed. Transcriptions and observations from the interviews and document reviews were analyzed using coding, categorizing, and thematic analysis. Results indicated that the CDM process of BSPT interns followed the basic PT process while integrating components of different decision-making frameworks. The interns used a holistic approach in patient assessment and management while recognizing the importance of knowledge of neurologic conditions, screening, movement training, and patient/caregiver education as components of CDM in neurologic practice. Contextual factors that affected their CDM were the physical set-up of the practice setting, the interns' degree of autonomy, and the patients' attitudes toward therapy. Findings of the study indicated that interns of EAC-Manila used CDM throughout the PT process and recognized unique aspects of CDM in neurologic PT but still placed high value on medical diagnoses as basis for assessment and management. These emphasized the need to highlight functional patient care and include more experiential learning in the curriculum and instruction, while also developing higher order thinking skills for more effective CDM.

Keywords: clinical decision-making, clinical reasoning, physical therapy, rehabilitation, education

INTRODUCTION

Clinical decision-making (CDM), also known as clinical reasoning is a cognitive process that guides the actions of a health professional (O' Sullivan, 2014). In physical therapy (PT), these actions constitute the PT process of 1) examination, 2) evaluation, 3) diagnosis, 4) prognosis, and 5) treatment (O'Sullivan, 2014). CDM is learned starting in the integrative courses and simulation activities in the classroom (Jensen & Mostrom, 2013). Its application is continued during internship, in which PT students undergo their first year of handling actual patients. This is also how CDM is taught in the old curriculum of the Bachelor of Science in Physical Therapy (BSPT) program of Emilio Aguinaldo College – Manila (EAC- Manila). Application subjects start at the third year, integrative subjects in the fourth year, and actual clinical practice by the fifth year. According to studies, the first year of novice practice is the stage in which PTs gain knowledge through the practice context while utilizing thinking and technical skills learned in the classroom (Hayward, Black, Mostrom, Jensen, Ritzline, & Perkins , 2013; Black, Jensen, Mostrom, Perkins, Ritzline, et al, 2010).

CDM serves as precedent for acts performed by the PT (O' Sullivan, 2014) while caring for patients with different conditions. In the Philippines, neurologic conditions related to lifestyle-related diseases (i.e., cerebrovascular disorders) are part of the top causes of mortality (Department of Health, 2016). Other less common neurologic conditions such as Parkinson's Disease and Multiple Sclerosis still persist in the Filipino community. For BSPT interns handling complex cases such as those affecting the nervous system, efficient CDM poses a challenge.

There are two widely-used CDM frameworks in PT: 1) the International Classification of Functioning, Disability, and Health (ICF) (World Health Organization, 2002), and 2) the Hypothesis-Oriented Algorithm for Clinicians II (HOAC - II) (Rothstein, Echternach, & Riddle, 2003). In 2006, Schenkman, Deutsch, & Gill-Body published the integrated framework for decision-making in neurologic physical therapist practice which follows the HOAC-II, but was created in the context of rehabilitation of neurologic cases. BSPT students of EAC-Manila were taught to use these decision-making frameworks via an eclectic approach.

In the realm of education, the Commission on Higher Education (CHED) released in 2017 a new set of BSPT program outcomes that would be adapted by all PT schools in the Philippines for the full implementation of the shift from competency-based to outcome-based education in the country in 2018. The data about the CDM process of EAC – Manila interns in adult neurologic practice would be useful to update instruction and curriculum, especially in the advent of such reform in PT education.

In 2014, an exploratory study was published about the decision-making process for PT in a stroke unit. This study used an ethnographic approach through observations of clinical practice and through interviews. According to McGlinChey & Davenport (2014, p. 1277), there are 3 important aspects of management delivery in a stroke unit: "the ideal physiotherapy delivery, the reality of physiotherapy delivery, and involvement in the clinical decision-making process." The study provides information about neurologic-specific CDM. It also supports the claim for minimal level of evidence regarding this topic.

There are limited researches related to CDM of BSPT students within the local context. This study, therefore, aims to describe the CDM process of EAC – Manila BSPT interns handling adult patients with neurologic conditions. Specifically, the study aims to describe the CDM process of BSPT interns in relation to use of the ICF, HOAC-II, and the integrated framework for decision-making in neurologic PT, and to describe unique characteristics of the CDM process of BSPT interns in

handling neurologic cases within the EAC community and its affiliation centers. This study only aims to describe the CDM process when handling commonly encountered neurologic cases. This could serve as a baseline for further exploration regarding CDM.

MATERIALS AND METHODS

The researchers used a case study design in describing the CDM process of EAC – Manila BSPT interns handling adult patients with neurologic disorders. This type of design enabled the researcher to investigate the complex nature of a physical therapist's CDM process in comparison to existing frameworks and in the context of the local practice setting.

The study was conducted in EAC – Manila, School of PTOTRT so that results of the research can benefit the school's community. Participants of this study were purposely selected. They should 1) be 5th year students currently enrolled in the BSPT program of the School of PTOTRT, and 2) have experienced handling adult patients with neurologic disorders during clinical internship. Four PT interns participated in the study when the data reached saturation upon analysis. All of them were enrolled interns, 2 from the regular batch, and 2 from the irregular batch. Students from different points in their internship were selected. The neurologic conditions they handled were stroke, spinal cord injury (SCI), demyelinating diseases, Parkinson's disease (PD) and peripheral nerve injury (PNI).

Data about the BSPT students' CDM process were obtained through in-depth interviews and document review. Individual in-depth interviews allowed thorough exploration of the ideas of the participants. This method was preferred over a focus group discussion since it enabled participants to focus on their own experiences and ideas, which is important to generate valid data on a complex phenomenon like CDM (Creswell, 2014). The interview followed a semi-structured format, which contained a majority of open-ended guide questions, with opportunities for follow-up questioning. The questions were based on the Physical Therapy Clinical Reasoning and Reflection Tool (Atkinson & Nixon-Cave, 2011), the ICF Model, the HOAC-II, and the integrated framework for decision-making in neurologic physical therapist practice. The document review involved diagrams created by the participants after the interview about their CDM process.

The study was implemented only after ethical review of its procedures by the EAC research department, and collection of informed consent from the participants. The consent contained measures to preserve confidentiality, respect for participants' rights, prioritization of their welfare, any risk related to the study and measures to address such, and the freedom to withdraw from the study at any time.

The in-depth interviews were performed first, then the document review. The interviews were conducted in isolated classrooms with only the researcher, the participant, and an external observer. The observer took note of any issues that might have come up during the interview, especially the participants' non-verbal behavior. Each actual in-depth interview was performed by the lead researcher in the same room for around 30 minutes, but in different days. All sessions were joined by the same observer. As data collection progressed, the amount and substance of data built upon one another. The interviews were transcribed and proofread twice for accuracy. These were also sent back to the participants for content validation.

All data were analyzed qualitatively through coding, categorizing, and theme formulation. First, the researchers coded the transcriptions, observation notes, and the diagrams separately. Validity was strengthened by triangulation, or analysis of multiple sources of data from the three sources

mentioned above. Member checking was performed after by comparing each researcher's codes then resolving any differences. Categories then themes were subsequently formed by the researchers together. This member-checking increased the reliability of the data, in the same way as maintaining consistency of the methods based on an audit trail by the researchers. Consistency of data collection procedures, audit trailing, proofreading of transcriptions and member-checking increased the rigors of the study. Validity was also ensured by increasing the exposure to the source of data (Creswell, 2009) through repeated in-depth interviews. This also helped reach data saturation by the end of the analysis. The two researchers in this project both have previous experiences in facilitating and writing qualitative studies.

RESULTS AND DISCUSSION

Based on the data, CDM was defined as a process involving integration of the interns' knowledge and skills, ultimately aimed at formulating the best plan of care for patients.

> "…you try to treat the patient from all your knowledge and the skills you've acquired, and you try to generate the best plan of care to achieve the goal of the patient." – Dan

The CDM process of EAC - Manila BSPT interns handling adult patients with neurologic disorders 1) follow the PT process, 2) integrate some components of CDM frameworks, and 3) is affected by different clusters of factors.

Theme 1: Clinical Decision-Making Follows the Physical Therapy Process

The interns performed CDM throughout the PT process of examination, evaluation, diagnosis, prognosis, and treatment (O' Sullivan, 2014). This starts by forming a pre-assessment image, also known as clinical picture, which they use as a basis in performing subjective and objective assessment. The interns refer back to this image after performing each of the assessments.

> "…usually you see the chart of the patient, you see the diagnosis, and then upon the actual meeting with the patient you can see the manifestations or the symptoms of the disease." – Dan

The subjective assessment involves history-taking related to the mechanism of injury, disease progression, medical history, changes in patient's functional abilities, and asking the patient's goals and attitude toward therapy. History-taking may also involve family members.

> "…if the patient was hospitalized… did not do anything after he or she woke up… I look at the functional limitations that occurred within that timeframe from having an attack and then waking up, and then how the patient would regress over time… How the patient reacted towards the activity limitation that has happened to him or her… [if] the environment had a contribution to the effect of the attack or CVA or stroke. And then I go to the activities of daily living (ADLs), how the patient functions, how the patient compensates… and then we go to the patient's goals and attitudes, even the knowledge of the patient with physical therapy…" – Charlie
>
> "*Pwede rin po kasing nakaapekto din po 'yong sa* family history *po niya. Pwede rin pong namana po 'yong sakit* and then *na*-develop *po 'yong* disorder." – Alex
>
> "*...hindi sila makasalita minsan…* I ask the caregiver *na lang po* or family member..." – Ben

The interns continue the PT process by selecting objective assessment tests based on the results of the subjective part. They also select tests based on the medical diagnosis, and on the patient's abilities.

> "…*depende po sa sasabihin sa* subjective. If there's weakness, I expect *na may…* [finding] *sa* MMT grading *nila…"* – Ben
>
> "…*meron naman tayong* specific tool for specific cases. Like for example, *sa* PD, *merong* UPDRS (Unified Parkinson's Disease Rating Scale). *Sa* stroke, *pwedeng gumamit ng* S-STREAM (Simplified Stroke Rehabilitation Assessment of Movement), NIHSS (National Institutes of Health Stroke Scale), *pero meron pa ring mga* considerations, *'Kaya ba niyang gawin… na mape*-perform *ba niya? Hindi ba magiging* biased *kung ito 'yong gagamitin mo sa kaniya?*'" – Alex

Upon refinement of their initial hypotheses from the pre-assessment image, the interns prioritize the patients' problems as they understand the cases more. In terms of creating a PT diagnosis, only one participant pointed out identifying primary and secondary impairments, while none highlighted diagnosing movement problems of patients with neurologic disorders. This is characteristic of CDM of novice therapists which is described as having difficulty in recognizing important cues and relationships (Hayward, Black, Mostrom, Jensen, Ritzline, & Perkins, 2013).

> "I review my problem list and I try to refine it more. I try to prioritize what I think should be the most disabling factor, or what his functional level is, what is his goal." – Dan

> "…*pagsasama-samahin mo po 'yong mga* subjective findings *tsaka 'yong mga* objective *na nakuha mo po sa kaniya at magkakaroon ka po ng* correlation *sa mga 'yon… Dapat makita po sa* diagnosis *'yong sakit na 'yon… Kung ano 'yong naapektuhan sa* patient; And then *'yong* highest *na* impairment *na nakuha niya dahil do'n sa sakit;* And then *'yong kung paano na*-develop *'yong sakit na 'yon at ano 'yong mga* secondary complications *na na*-develop *dahil sa pagkakaroon niya no'ng sakit;* And then *papasok din po do'n 'yong mga* ADLs *niya, 'yong mga hindi niya nagagawa.*" – Alex

Use of CDM in prognosticating and goal-setting is more pronounced in the PT interns, compared to when creating diagnoses. They identified specific factors they consider in performing these two tasks.

> "Age *po siguro nung* patient.. *'Yong mga makikita kong mga* findings *sa* objective parts… which can affect also *ng* patient. *'Yong mga* synergistic pattern *po* for stroke *lalo na po sa* lower ex[tremities], if the patient *na gusto nilang maglakad.* Or *sa* hands *po kapag gusto nila mabalik 'yong* hand functions *nila…* If *meron po ba siyang* other conditions… *Tapos siguro po 'yong* nature of work*… Tsaka… Kung gaano po siya mag*-co-comply *sa* therapy *po…*" – Ben
>
> "The number one factor is the willingness, next is the financial capability of the patient. Next is the environment where the patient moves around and, lastly, if the patient has other comorbidities." – Charlie

During goal-setting, interns prioritize the patients' personal goals, while still considering the results from the assessment. They continue to use assessment results in formulating the plan of care for their patients. They consider findings from the initial evaluation, and their assessment from every session.

"First is the patient's goal first because that is really important. If they want to walk, we can try to make them walk. The next things is based on your assessment. You know the patient's capabilities..." – Charlie

"*Bi-ne*-base *ko po dun sa nakuha kong* objective assessment *lahat ng maisip ko pong*... strategies on how I can treat the patient *po*... Then also for the next session *nga po titingnan ko po if nag-co*-comply *po sila dun sa binigay kong mga* home instructions or like ward instructions *na binigay ko sa kanila. Kasi mapapansin mo din naman sa kanila kung ginagawa nila yung exercise na binibigay mo. Makikita mo 'yong* progress *po."* – Ben

Their treatment for patients with neurologic disorders involve techniques targeted to remediate or prevent manifestations, and to educate the patient and family. These follow the integrated framework for neurologic conditions, which will be further discussed in the next theme.

Theme 2: Decision-Making Process of Interns Integrate Some Components of Different Frameworks

The interns incorporate the ICF model to CDM by assessing and managing different aspects of a patient's disability including the medical condition, bodily impairments, activity limitations, participation restrictions, environmental factors, and the patient's personal factors (World Health Organization, 2003).

"'Yong pagkuha po ng history *kailangan po malaman natin 'yong pinanggalingan no'ng sakit niya... kung ano pa po 'yong mga nagagawa niya* before... And then *kung ano po 'yong* impact *sa* patient… *Pwede rin pong namana po 'yong sakit* and then *na*-develop *po 'yong* disorder…. *'Yong* history *niya do'n po natin i-be*-base 'yo*ng* goals *natin* for the patient – *'yong* environmental history, *'yong* personal history *niya.*" – Alex

"…even the emotional status of the patient, the financial status. I account that because not all patients, not all individuals are the same…" – Charlie

The interns also integrate the HOAC-II to decision-making by creating hypotheses at different steps in the PT process. This is also apparent in their ability to modify their initial plans for assessment and treatment, based on the patient's manifestations.

"It may be possible that this is another disease, or you try to do a differential diagnosis to rule out other conditions." – Dan

"*Meron na po kasi tayong* clinical picture *do'n sa* patient *kapag nakita natin 'yong* case *niya,* and *then ma*-co-confirm *na lang natin 'yon sa mga* assessments *na gagawin natin kung nagtutugma ba 'yong* hypotheses *natin do'n sa pinapakitang* presentation *ng* patient." – Alex

"From the subjective [assessment] I try to already list the problems that I think the patient has. But upon the objective assessment, sometimes you find even more problems that maybe may become more of a hindrance to achieving his goals." – Dan

"I think my hypothesis doesn't stop until I finish my treatment session with my patient because you are always formulating the hypotheses." – Charlie

They also anticipate possible patient problems that are important to prevent. In the next framework, the importance that they give to prevention of problems will also be more pronounced.

"I try to maintain the patient's muscular endurance because if the patient cannot do this specific task, if the patient is easily fatigued, I cannot really do my treatment plan." – Charlie

The BSPT interns also relate objective tests to goal-setting. Although not explicitly stated, the lines below may be significant of identifying testing criteria for the patient's goals.

> "…*'yong mga nakikita nating* results *do'n sa* objective parts natin… *Titingnan po natin kung kaya po ba nating ma*-improve *'to.*" – Alex

Lastly, the interns shared some parts of their CDM process that are related to the integrated framework for decision-making in neurologic physical therapist practice. These aspects are screening for patients with neurologic disorders, and assessment and treatment of movement problems.

The interns initially screen for any cognitive and language disorders in the patient before proceeding with their PT session. However, they do not necessarily emphasize review of affectation of other body systems apart from the musculoskeletal and nervous systems. One intern emphasized monitoring the blood pressure (BP) of patient for safety.

> "I consider first the level of cognition of the patient because once the cognition is impaired… It can affect your other assessments, especially the ones needing commands and instructions." – Dan
>
> "*...'pag tumatango po sila, or napapansin kong* aware *naman sila kaso hindi sila maka-salita minsan,* I ask the caregiver *na lang po* or family member *or kung sino po 'yong bantay...*" – Ben
>
> "I'll get *'yong mga* pertinent *na* test and measures *po natin na pina*-practice *po sa* PT for adult *po*. Example… ROM (range of motion), MMT (manual muscle testing), DTR (deep tendon reflexes), tone… Coordination… Sensory, *lalo na sa* stroke *po.*" – Ben
>
> "…every time you go to the patient, it's different. For example, the BP it always shoots up. Sometimes it's always down. It's not stable." – Charlie

According to the framework by Schenkman, Deutsch, and Gill-Body (2006), the focus of assessment in neurologic PT should be evaluating movement patterns through task analysis. Only one participant specifically cited this, while others mostly gave emphasis to movement patterns when it came to facilitating exercises for the patients.

> "…maybe you need to… try to find out [how] the weakness affected in his job, how he compensates now, or… 'Can he do it?'" – Dan

Although the beginning competencies are present, the interns' limited performance of screening, systems review, and task analysis may be due to the tendency to use backward reasoning. This is common for novice PTs (O' Sullivan, 2014) and is rooted to their focus on the medical diagnosis of the patients. Backward reasoning does not match perceptual data collection, which is the primary characteristic of assessment in neurologic PT practice. Perceptual data collection requires a PT to gain experiences from which he/she can base hypotheses that will be tested throughout evaluation, and not just from theoretical knowledge of the patient's medical condition (O' Sullivan, 2014).
The BSPT interns perform different management tasks in the neurologic practice. These are education and intervention, which is further divided into remediation and prevention (See Appendix B). The interns consistently highlighted the importance of patient and caregiver education in the management of adult patients with neurologic disorders, which is a good indicator of the transition from novice to expert CDM (Hayward, Black, Mostrom, Jensen, Ritzline, & Perkins, 2013).

> "I just try to teach him what he can do alone with proper precaution to his condition." – Dan
> "… *'yong* incorporation *naman po do'n sa* family *niya, pinapa[pa]nood ko po* then *pinapa-*demo *ko po sa harap ko… Para ma-*correct *ko po* if *tama po ba 'yong gagawin nila sa bahay.*" – Ben

Neurologic intervention is further classified into counselling, remediation, and prevention (Schenkman, Deutsch, & Gill-Body, 2006). The BSPT students performed the last two techniques, while it is important to note that counselling was not mentioned by any participant.

> "…in the clinics you only meet at least 3 times a week. So you only have 4 days at home that they could exercise or do what they want. Maybe they could do something wrong that could worsen the condition, so proper patient education is needed to prevent further disease progression." – Dan
> "I try to maintain the current physical capabilities of that specific patient so that I can make sure that when I go back, it's still this range… certain range of what the patient can do." – Charlie
> "…*sa* bedside *po kasi minsan, 'yon nga, laging nakahiga* so *parang na-e-*exercise *din 'yong cardiovascular nila 'pag* active *din sila.*" – Ben

Although it was not explicit during assessment that the students looked into movement patterns, their remediation of patient problems caused neurologic disorders focused on functional exercises and giving feedback on performance of movements associated with functional activities.

> "I was gait training my patient and I saw that he had really poor control… I tried to let him do it at first but when I saw that he can't really do it, I guided him until I progressed it in the next session, and the next session, until there was no more support…" – Dan
> "…*Kapag pinakita ko 'yon* [exercise] *sa kaniya… Kapag hindi niya po nakuha… Itututuro ko po… I-mu-*move *ko siya kung pa'no yung* exercises… *Then pag hindi po talaga,* verbally, *o kaya, 'Sige… Sabay na lang po tayo gaganito.' Nasa harapan niya po ako,* ma'am, *kasi ang gusto ko lang po is maramdaman niya at makita niya yung mga ginagawa* naming exercise." – Ben

Focus on treatment skills and effects of treatments are characteristics of novice CDM (Hayward, Black, Mostrom, Jensen, Ritzline, & Perkins, 2013). This is also why the interns described a more comprehensive treatment, rather than assessment for patients with neurologic disorders. The lack of discussion on counselling possibly relates to very limited training on inter-professional approach to patient care. According to Schenkman, Deutsch, & Gill-Body (2006), counselling is also a task related to intervention for patients with neurologic disorders, and would have concretized the ability of the PT interns to perform holistic management. Furthermore, it should be noted that this framework was not as utilized in comparison to ICF and the HOAC-II since it is an applied, disease-specific framework and requires the students to be able to integrate more knowledge and skills effectively.

Theme 3: Factors affecting Clinical Decision-Making

The CDM process of BSPT interns are affected by several factors that the researchers segregated into three sub-themes: 1) approaches to patient care, 2) therapist's abilities, and 3) contextual factors.

Sub-theme 1: Approaches to Patient Care

The interns apply the functional, patient-centered, and holistic approaches in processing cases of adult patients with neurologic disorders. They expressed application of these approaches through the statements below.

A. Functional Approach

"You can already tell the patient's functional capabilities at the subjective assessment… If they can try to do that specific test, I try to incorporate other tests so I can rule in or rule out more functional limitation, and so that I can also have a more in-depth picture of what their clinical capability, functional capability are." – Charlie

"If you have weakness, you want to strengthen it but you want to strengthen it in a functional manner in lining it with their former occupation or maybe in his own environment." – Dan

B. Patient-Centered Approach

"'*Pag po sa pag-pa*-prioritize, *bi-ne*-base *ko pa rin po siya do'n sa* goal *po kasi ng* patient." – Alex

"Maybe basing [the intervention] on their home environment, or how many person does he live with, or who does he live with, or does he live with children, or lives with adults that could help him at home." – Dan

C. Holistic Approach

"…I look at the patient's current emotional status, the patient's current style of living…" – Charlie

"The number one factors [in prognostication] is the willingness, next is the financial capability of the patient, next is the environment where the patient moves around and lastly, if the patient has other comorbidities." – Charlie

"(Regarding considerations for patient education) Some, educational attainment, his level of understanding, his level of cooperativeness…" – Dan

The emphasis on a holistic approach to patient care is a sign of the interns' transition from novice to expert decision-making (Hayward, Black, Mostrom, Jensen, Ritzline, & Perkins, 2013). However, based on the interviews and document review, they still place high value on the etiology of the patients' conditions as basis for assessment and management. This is characteristic of backward reasoning used in novice CDM (O' Sullivan, 2014) that was mentioned in the previous theme.

D. Emphasis on Etiology

"*Do'n na po papasok 'yong pagkuha po ng mga* objective findings, *parang i-co*-confirm *mo po 'yong* severity *no'ng sakit niya* and then *'yong* chronicity *din po* based *dun sa* history…" – Alex

"…the tests and measures are quite general because all of my cases are the same. The differences are the laterality that was affected and the severity of the stroke…" – Charlie

"The main difference that I see, for adult neuro[logic] patients from my other patients is the MOI or mechanism of injury." – Dan

"…for CVA patients, I think it (most important problem) is either the flaccidity or the typical arm posture. That's what I first look at. Next is if the affected part has a muscle atrophy…" – Charlie

"The first factor [in prognostication] is mainly is age… The specific type of the disease…" – Dan

"I think if I can correct the balance, I can make the patient walk properly." – Charlie

Sub-theme 2: Therapists Abilities

The CDM process of these students are also highly influenced by their individual abilities as therapists. Their ability to think critically, or perform higher order thinking skills, enables them to arrive at sound decisions. This was manifested in different scenarios during their internship. This is also related to the students' ability to perform metacognition and reflect on their abilities when performing CDM.

> "When I think the patient's goal is really not… SMART (Specific, Measureable, Attainable, Realistic, and Time-bound) or not attainable, or too far away from the reality, I just try to keep the goal in which I think the patient can achieve, a realistic goal." – Dan
> "…*kung* appropriate *ba 'yong* [treatment] approach *na 'yon for the patient at kung mas mag-be-benefit po ba siya dun sa* patient." – Alex
> "…*'yong hindi po kaya ng* patient *gawin 'yong isang* exercise. So *i-mo*-modify *mo po siya na mas madali para sa kaniya pero* same target *po 'yong na*-ta-target *mo.*" – Alex
> "I try to make the most out of it even though they are not financially capable. If they cannot buy the things that they needed, I try to compensate for grip strengthening like I try to use towels for grip strengthening…" – Charlie
> "…if I'm not confident in performing something in this case, it limits me of what I assess, and how I diagnose my patient, and how I treat, how I do my plan of care for a patient. If I don't know a specific treatment or something I need to do with a patient, I try to ask help from my supervisor… If I have a procedure that I have more knowledge of, I do that." – Dan

The interns exercise their ability to collaborate with the patients and their family members, especially in setting the goals for therapy. This is a good manifestation of their patient-centered and holistic approach to patient care, despite collaboration with family being more highlighted on CDM frameworks for handling pediatric patients with neurologic disorders (Kenyon, 2013; Palisano, 2006).

> "*I-mi*-meet halfway *mo po kasi dapat kung ano 'yong gusto ng patient na mangyari sa kaniya at kung ano po 'yong nakikitang* potential *ng* patient *na kaya niyang gawin.*" – Alex
> "I incorporate because some of the family members' goal are quite similar to the patient's goal. So, I don't really have a hard time to formulate specific goals for them." – Charlie

It should be noted that the influence of collaboration with other health professionals to CDM was not mentioned by any participant in the interview. Collaboration and inter-professional approach are two of the concepts emphasized in the non-clinical roles added to the new BSPT Curriculum (CHED, 2017).

In terms of treatment, all the participants use an eclectic approach. They expressed that they combine treatment techniques like the Motor Relearning Programme (MRP), the Bobath Approach, Proprioceptive Neuromuscular Facilitation (PNF), and Rood's Technique. However, since they also want to be consistent with a functional approach to patient care, they tend to use MRP more.

> "*'Yong* MRP *nilalagyan ko po siya minsan ng* PNF, tsaka po mga inhibitory techniques kasi wala naman po sa MRP 'yong mga 'yon." – Alex

> "*Mi-ni*-mix *ko 'yong* techniques *na naturo samin* like *'yong* Bobath… then *'yong* MRP *po. 'Yon 'yong pinaka gusto ko pong* approach, *'yong* MRP, which is functional *po talaga…*" – Ben

Another finding for this subtheme is the extent of the ability of interns to apply evidence-based practice (EBP) in decision-making when decked with a patient with neurologic disorder. The PT interns mostly just defined EBP by paraphrasing its textbook definition.

> "…*kailangan mayroon tayong* question *para doon sa patient. Mayroon po kasi tayong hinahanap na* outcome… For example *sa* intervention, *pwede pong mangyari kasi na marami po tayong naiisip na* intervention *pero ano po ba 'yong* best *na pwede doon na mag*-benefit *sa* patient. *'Yon pa 'yong kailangan natin hanapin para po magawa pa rin natin 'yong* exercise *niya sa* limited time *na binibigay natin sa kaniya. Tapos para na-ma-*maximize *po natin 'yong* time *niya na nag-be-*benefit *po siya… 'Pag meron na po tayong* question… *Meron naman po tayong* databases *na pwede pong paghanapan. Pero kapag,* for example, *na nakita po natin na sobrang* related *po no'ng nakita nating* article *doon sa* patient *natin… 'Di naman ibig-sabihin noon na gagamitin na po agad kasi dapat ma-*appraise *pa po 'yung* article before *po i-*apply *doon sa* patient…" – Alex

Due to limited opportunities to apply the principles to actual patient cases, the interns viewed EBP more as a requirement of their affiliation centers rather than an essential consideration in CDM. Some interns were not able to apply the outputs of their EBP projects to the patients that they formulated the clinical questions for. These findings are parallel to the results of an unpublished study in the same institution and same batch of students. Practice, sympathy, and confidence of BSPT interns in applying EBP are lower than their perception of its relevance and their knowledge of related terminologies. This is due to lack of opportunities to apply the EBP process to actual patients (Concepcion, Naguita, Picart, Gardoce, Bakuteza, & Sanggalang, 2018), which could also facilitate CDM.

Despite these, one of the participants was able to cite an instance in which he practiced EBP for the prognosis of his patient, on his own accord. He was also able to describe more specifically how he applied the output of their EBP project in planning for his patient's management.

> "Because the goal of the patient was to regain his hand function, and in line with the evidence that I used, he regained his hand function about 4 months after his stroke. And from the evidence it was much, much earlier, like 4 weeks if I remembered correctly- 2-4 weeks. So in line with that, the patient was already chronic 1 year post-stroke so it already passed the evidence of the period of stroke - the hand function of the patient, I just put it a fair prognosis." – Dan
>
> "The patient I had was already a chronic patient so I tried to find the evidence that has an inclusion criterion that the condition must be chronic. So it affected me that because in the study, the results were varied and weren't the same for both interventions… Because it was mirror therapy versus MRP so, I think you can incorporate them both during treatment so, it really did not affect that much. I just tried to incorporate them both that while the patient doing the exercises that is in line with MRP, he used the mirror, to see…" – Dan

Sub-theme 3: Contextual Factors

Factors unique to the Philippine setting were also emphasized by the interns in performing CDM. The physical set-up of the facility influences the interns' selection of treatment techniques to be used for their patients. They consider availability of the equipment and of the treatment space.

> "*Minsan po kasi kailangan naming ng mga* equipment. *Pwede naman pong mag*-improvise *so nagagawa pa din naman po 'yong mga kailangan. Ang* problem *lang po*, for example, *masikip po 'yong* clinic. *Do'n po nagkakaroon ng* problema… *Do'n ka po mag-a*-adjust *ng* approach." – Alex

Another repeatedly identified influencing factor to CDM was the degree of autonomy granted to the interns. Majority of the affiliation centers allow the PT interns to plan their own assessment and treatment for adult patients with neurologic disorders. They are also allowed to modify treatment prescription as appropriate. Their decision-making is guided by their respective clinical instructors, especially for treatment selection and progression.

> "Some centers, they let you do your own evaluation and your own treatment plan but they still modify it… If your plan is not included in the doctor's orders, they remove it… The policy really is to talk to your superiors before you do the intervention that you want." – Dan
> "…*kailangan mo din ng* respect *do'n sa* CS (clinical supervisor) *mo kasi nga siya yung* licensed *na. Ikaw... parang* practicing, training *ka pa din.*" – Ben
> "…*pwede ka pa rin naman pong mag*-recommend *ng mga* exercises *na pwedeng ibigay do'n sa* patient. *Basta po i-co*-consider *mo 'yong mga* precautions *na bigay po ng* doctor." – Alex

Patient compliance to therapy is the last contextual factor repeatedly cited by the interns. This is related to the patient and family's attitude toward therapy. The interns consider this a valuable factor in deciding how to continue with their day-to-day treatment sessions with the patient.

> "…for the next session *nga po titingnan ko po if nag-co*-comply *po sila do'n sa binigay kong mga* home instructions or like ward instructions …Big factor *'yon para sa kanila kasi hindi naman palagi kayong nasa* therapy, *kasi* 1 hour *lang* or 2 hours *lang ang binibigay sa 'yo na* therapy… *Mas maraming oras ikaw para sa sarili mo kaysa sa therapy.*" – Ben

Majority of the factors in this theme matched with the factors affecting CDM that Smith, Higgs, & Ellis (2008) identified. These are technical and cognitive abilities, or the interns' ability to perform critical thinking and to use knowledge related to the patient's medical condition; reflexive abilities, or the interns' ability to perform metacognition and use this as basis in either pursuing or changing decisions; and collaborative abilities, or the interns' ability to create decisions considering the interests of the patient and family. Other factors identified by Smith, Higgs, & Ellis (2008) that were not highlighted from the data in this study were emotional abilities and social abilities of the therapist.

CONCLUSION

In summary, EAC-Manila BSPT interns follow the basic PT process when performing CDM for cases of adult patients with neurologic disorders. They use CDM during examination, evaluation, formulation of PT diagnosis, creation of prognosis, and treatment. Among these tasks, use of CDM seemed least practiced in diagnosing patients as the students tend to rely more on the medical diagnosis, rather than focusing on the movement and functional problems.

The variations of the CDM process of interns from the basic PT process (See Appendix B) signify incorporation of some components of the ICF, HOAC-II, and the integrated framework for decision-making in neurologic PT practice. The interns use HOAC-II by revisiting previously accomplished tasks in the PT process to check validity of their hypotheses after assessment and

before starting treatment. In also check information derived from examination, especially the patient's personal goals, in order to set relevant outcomes of rehabilitation. The interns show adherence to the integrated framework for neurologic practice by performing screening to a certain degree during objective assessment, remediating the patient's movement problems, and including education and prevention in management of the case.

The CDM process is influenced by the interns' different approaches to patient care, their individual abilities, and the contextual factors unique to PT practice in the Philippines. They are able to use functional, holistic, and patient-centered approaches, but still give high value to the medical condition as basis for decision-making. They are able to use their critical thinking skills in creating decisions throughout the PT process, and their collaborative skills during goal-setting and treatment planning. However, interns have limited ability to incorporate evidence-based practice in CDM and view EBP more as a requirement than as an important consideration. Lastly, the unique contextual factors that affect the interns' CDM are the physical set-up of the facility, their degree of autonomy, and the attitude and compliance of the patients to therapy.

RECOMMENDATION

Based on these results, the researchers recommend the following improvements to instruction, starting with classroom activities: 1) continue to emphasize a functional approach to decision-making, especially in creating movement diagnoses for patients with neurologic disorders to lessen the dependence of interns decision-making on the medical diagnosis; 2) highlight importance of systems review and screening, which did not come out as a consistent part of the interns' objective assessment; and 3) introduce basic counselling techniques as part of PT management, which did not emerge at all as part of the current management of interns for adult patients with neurologic disorders.

In terms of experience-related learning activities inside and outside the classroom, more opportunities should be provided to apply 1) their skills in assessment and treatment of actual patients with neurologic disorders to further enhance critical thinking and relate more to the patient as a person, 2) their skills in using evidence for planning for sessions with patients even before internship to appreciate EBP more, and 3) their skills on collaboration with patient and caregivers, and other members of the health care team to facilitate more effective goal-setting, and improve patient's compliance to therapy.

As for the BSPT curriculum of EAC-Manila, the researchers recommend that 1) the subject which introduces EBP be placed earlier than majority of the professional subjects, and 2) arrange subjects such that basic concepts can be immediately applied, then further integrated before internship.

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