



**Satisfaction of Physiotherapy Services and Socio-Demographic Associates among
Individuals with Low Back Pain Attending Outpatient Physiotherapy Unit in Kano State,
Nigeria**

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Abstract

Patients' satisfaction is an important indicator of the quality of care provided to recipients of health services. It is imperative to evaluate patients' satisfaction to physiotherapy services, so that patients' needs are better catered for, as well as to improve the services. This study assessed satisfaction of physiotherapy services among patients with Low Back Pain (LBP) in an outpatient physiotherapy unit in kano, Nigeria. The study was a cross sectional survey involving 202 LBP patients receiving physiotherapy treatment. MedRisk Patient Satisfaction Questionnaire was used to assess their satisfaction. Descriptive statistics was used to summarize the participants' characteristics. Chi-square test analyzed the association between participants' characteristics and satisfaction, statistical level of significance was defined as $p \leq 0.05$. A total of 186 participants completed the questionnaires, a response rate of 92%. Among all the participants; hundred (53.8%) were females, most of them fall within the age ranges of 30-39years (30.1%) and 40-49 (28.5%), 83% are married and 48% have attained a tertiary education level. Majority (86.0%) of the participants are Muslims and Hausa by tribe. Satisfaction level was reported to be high in 167 of the participants (90%). Demographic data of; age (40-49), female gender, married status, 4 visits, tertiary education, Islam and Hausa have the highest satisfaction. However, only number of visits ($p=0.01$) and educational level ($p=0.04$) have significant association with satisfaction. Conclusively, satisfaction was high among LBP patients attending an out-patient physiotherapy unit in Kano, Nigeria. Education level and number of visits are associated with patients' level of satisfaction.

Keywords: Patient Satisfaction, Physiotherapy Services, Low Back Pain, Outpatient Physiotherapy

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Introduction

Low back pain (LBP) is the fifth most common reason for physician visits, it affects nearly 60-80% of people throughout their lifetime (Maher et al., 2017). Pain in the region between the lower margin of the 12th rib and the gluteal folds with or without distal radiation to the lower extremity is referred to as LBP (Biyani & Andersson, 2004). The pooled lifetime, annual and point prevalence of LBP in Africa was 47%, 57% and 39% respectively (Morris et al, 2018). Point prevalence of LBP in Nigeria of LBP ranged from 14.7% to 59.7% (Bello & Adebayo, 2017). Chronic LBP is a painful condition which may limit individuals from performing their activities of daily living effectively. The disability from LBP was reported to be 11-12% (Maher et al., 2017). Physiotherapists play important roles in the treatment of LBP. Physical treatments encompasses improving functions and preventing disabilities from getting worse (Foster et al., 2018). A number of non-pharmacological means are used by physiotherapists in the treatment of LBP patients. They include hands-on interventions like manual therapy, massage, etc.; hands-off techniques like aerobic exercises, educational interventions, etc. (Girbés et al., 2015; Mukhtar et al., 2022). These physiotherapy interventions maybe administered to patients while they on hospital admission (in-patients) or visit physiotherapy units to receive treatments and return home (out-patients) based on the recommendation of healthcare personnel and or patient's preference.

Patient satisfaction is a measure of the extent to which a patient is content with the health care they received from their health care provider. It is one of the most significant factors which help to estimate the success of a health care facility (Manzoor et al, 2019). Patients' satisfaction has remained very important and an essential focus point for all health providers (Hills & Kitchen, 2007a). It has been proposed as a simple measure of the quality of care (Jackson & Kroenke, 1997). This measurement is also a vital estimate to assess the quality of healthcare received. It can help to give information on the provider's success at meeting clients'/consumers' expectations. It is a key factor of how services have been able to meet the needs of patients thereby influencing their perspective (Xesfingi & Vozikis, 2016).

It has also been described as a process of evaluation of health care interventions for the delivery of quality service (Hardy et al., 1996). Patients are likely to follow treatment instructions and medical advice if they are satisfied with treatment with the hope that it will be effective (Hardy et al., 1996). Level of satisfaction varies with disease condition, satisfaction is generally higher in patients with acute conditions than in those with chronic conditions (Hills & Kitchen, 2007b), possibly because those with acute conditions are more optimistic about their outcome. Systematic process of getting patients feedback in Physiotherapy and utilizing that feedback to make some necessary changes accordingly is understudied in physiotherapy care setting (Stiller & Wiles, 2008). Therefore, assessing patient's satisfaction with physiotherapy service could help to gather information that can utilized for improving or maintaining quality service such as process and outcome of care, patient behaviour prediction and ways to improve health care (Guadie et al. 2022). Researches have documented the role of different demographic factors in determining client satisfaction with health care services. The nature of these demographic variables influencing satisfaction differ widely across clients (Adhikari et al, 2021) and often difficult to interpret (Houts et al., 1986). It is reported that satisfaction with health care may be related to variables such age,



gender, education level, waiting time, doctors' communication behavior (Chandra et al, 2019). Djordjevic & Vasilievic (2019) reported age, gender, marital status, employment.

In Nigeria, services provided at public health facilities are mostly assumed to be poor by members of the public (Afolabi et al., 2013). Nigeria as a country has the largest population, with estimate of more than 211 million population in 2021 (<https://worldpopulationreview.com/>), however healthcare personnel to patient ratio is very poor. The physiotherapist patient ratio is below the standard in many hospitals in Nigeria and is reported to be as low as 1 physiotherapist per 42,000 Nigerians (Olaleye & Lawal, 2017). Balogun, 2020 also reported poor therapist- patient ratio as 1.7 per 100,000 when compared to other countries worldwide. Although many variables have been reported to be associated with treatment satisfaction, in Nigeria, such variables are seldom investigated among patients receiving physiotherapy treatment in environments that vary in culture, literacy and religious practice like Nigeria. Hence, couple with other cultural and environmental factors, may affect the satisfaction level of patients receiving physiotherapy care in Nigeria and may make the satisfaction level different from what is obtainable in other parts of the world.

Strategies to improve services rendered to patients in public hospitals such as ‘service compact’ (SERVICOM) are in place, but routine patients’ satisfaction checks are not usually practiced in many hospitals. Moreover, satisfaction checks by independent bodies maybe more objective when compared to checks done by employees of the same organization. Therefore, the objectives of this study was to independently assess the satisfaction of patients with LBP about the physiotherapy management they received from the physiotherapy out-patient clinic in National Orthopedic Hospital Dala, Kano (NOHD-Kano).

Objectives of the Study

1. To determine the satisfaction level of individuals with LBP attending out-patient Physiotherapy Clinic in National Orthopedic Hospital, Dala, Kano.
2. To determine the association between socio-demographics (Age, Gender, Marital status, educational level, Religion, Tribe and Number of visits) and patients’ satisfaction among individuals with LBP attending out patients’ physiotherapy unit of National Orthopedic Hospital, Dala, Kano.

Research Questions

1. What is the level of patients’ satisfaction among individuals with LBP attending out-patient Physiotherapy clinic in National Orthopedic Hospital, Dala, Kano?
2. What is the association between Socio-demographic variables (Age, gender, marital status, education level, religion, tribe and number of visits) and patients’ satisfaction among individuals with LBP in out-patient Physiotherapy services in National Orthopedic Hospital, Dala?

Hypothesis



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Satisfaction will not be influenced by socio-demographic factors among individuals with LBP in National Orthopaedic Hospital Dala, Kano.

Methodology

A cross sectional descriptive survey design was used. The target population were LBP patients attending the outpatient clinic of Physiotherapy Department of NOHD-Kano available at the time of data collection. NOHD-Kano is the only public tertiary hospital referral center for orthopedic conditions in the Northern part of Nigeria and its services extends to the neighboring countries. A sample size estimation for a population of less than 10,000 (Spencer et al., 2011) was used and a total of 203 participants was considered sufficient taking into consideration 5% attrition rate (Nwankwo et al., 2019). Prior to the commencement of the study, an ethical approval was obtained from the research ethics committee of the same hospital (NOHD-Kano). Only individuals with chronic LBP (≥ 3 months), of ≥ 18 years and are receiving physiotherapy interventions on an outpatient basis for at least six weeks were considered for inclusion. Patients' informed consents were obtained before recruitment. A researcher developed pro forma was used to collect the demographic characteristics of the included participants.

MedRisk patient satisfaction questionnaire (Beattie et al., 2005) was used to collect the satisfaction data. The questionnaire was translated to Hausa language and backward to English language at department of linguistics Bayero University Kano. The translated Hausa version of the MedRisk questionnaire were administered to those participants who cannot read or understand English language but can understand Hausa. The non-Hausa speaking participants completed the English version of the questionnaire. The mean score of each participant was calculated and all scores were analyzed. The minimum score in this questionnaire is 13 and the maximum score is 65. For the purpose of this study, participants having an overall score within the range of 13-29 were considered to have low level of satisfaction, those participants having an overall score within the range of 30-47 were said to have moderate level of satisfaction, while participants having an overall score within the range of 48-65 were said to have high level of satisfaction. The questionnaires were retrieved back from the patient's same day after filling. Total number of 203 questionnaires was administered; however, only 186 questionnaires were returned.

Descriptive statistics of mean and standard deviation, frequency and percentage was used to summarize the demographic information and different domains of patient satisfaction. Chi-square was used to analyze the association between patient satisfaction and participants characteristics at ≤ 0.5 level of significance. Data analysis was carried out by Statistical Package for the Social Sciences (SPSS) version 20.

Results

A total of 186 patients out of 202 completed and returned the study questionnaires, giving a 92% response rate. The participants' socio-demographic information are presented in Table 1. The study showed that 86 (46.2%) of the participants are males, while 100 (53.8%) are females. Most of the participants are within the age ranges of 30-39 and 40-49 years with 56 (30%) and 53 (29%) participants respectively. Furthermore, up to 83.3% of the participants are married and

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48.4% of all the participants have attained tertiary level of education while 28.5% of the participants acquired non-formal education. Majority (86.0%) of the participants are Muslims while 14.0% are Christians. Most of the participants are Hausa by tribe (59.7%).

Table 1: Socio-demographic information of the study participants

Variables	Frequency (N)	Percentage (%)
Age (in Years)		
20-29	18	9.7
30-39	56	30.1
40-49	53	28.5
50-59	32	17.2
≥60	27	14.5
Gender		
Male	86	46.2
Female	100	53.8
Marital status		
Single	21	11.3
Married	155	83.3
Divorced	1	0.5
Widow(er)	9	4.8
Education level		
Non formal	53	28.5
Primary	11	5.9
Secondary	32	17.2
Tertiary	90	48.4
Religion		
Islam	160	86.0
Christian	26	14.0
Tribe		
Hausa	111	59.7
Fulani	21	11.3
Hausa/Fulani	21	11.3
Igbo	15	8.1
Yoruba	11	5.9
Others	7	3.8

The findings showed that 41.9% of the participants went to the clinics four times in a month, 38.7% visit the clinics twice in a month, 10.8% visit the clinic eight times in a month and 8.6% of the participants attends clinic only once in a month (Figure 1).

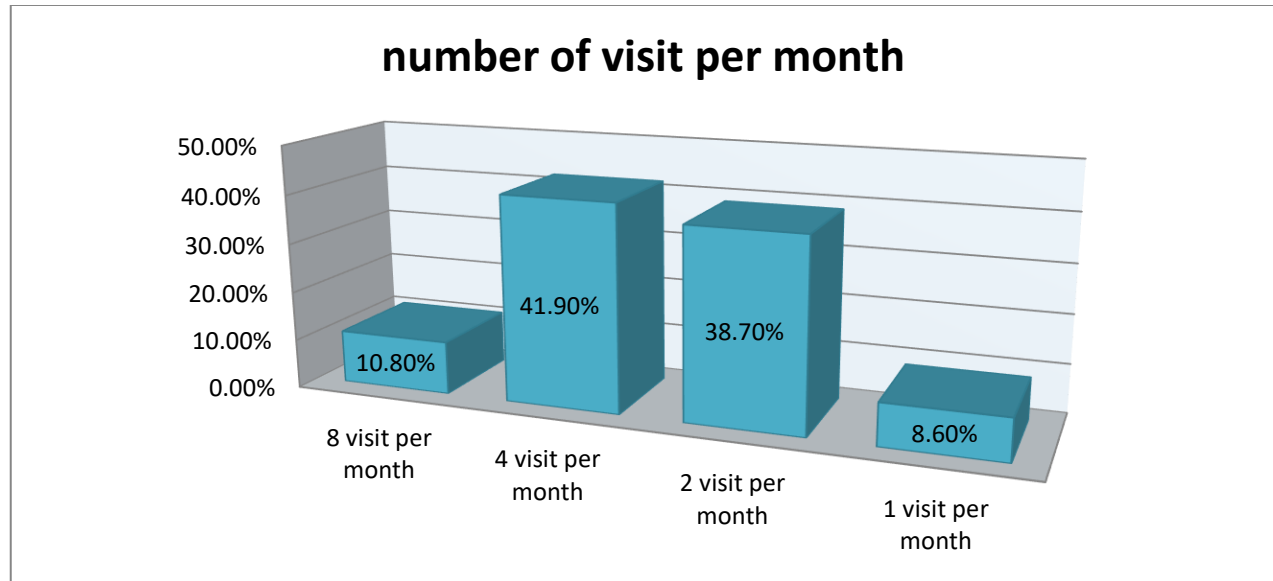


Figure 1: A bar chart showing number of clinics visit by the participants

Research Question 1

What is the level of patients’ satisfaction among individuals with LBP attending out-patient Physiotherapy clinic in National Orthopedic Hospital, Dala, Kano?

Table 2: Patients’ Satisfaction with Physiotherapy Services

Variable	N	%
Low level of satisfaction	0	0
Moderate level of satisfaction	19	10.2%
High level of satisfaction	167	89.8%

Table 2 showed that majority of the participants had high level of satisfaction of the physiotherapy service received (89.8%) and few have moderate satisfaction 19 (10.2%). None of the participants have low satisfaction level.

Research Question 2

What is the association between Socio-demographic variables (Age, gender, marital status, education level, religion, tribe and number of visits) and patients’ satisfaction among individuals with LBP in out-patient Physiotherapy services in National Orthopedic Hospital, Dala?

Table 3: Association between Participants' Characteristics and level of satisfaction

Variables	Moderate Satisfaction	High Satisfaction	X ²	p-value
Age (Years)				
20-29	3	15	3.95	0.40
30-39	4	52		
40-49	4	49		
50-59	3	29		
60 and above	5	22		
Sex				
Male	11	25	1.16	0.34
Female	8	92		
Marital status				
Single	2	19	2.62	0.48
Married	15	140		
Divorced	0	1		
Widow	2	7		
Number of visit per month				
Eight visit per month	0	20	10.3	0.01*
Four visit per month	10	68		
Two visit per month	4	68		
One visit per month	5	11		
Education level				
Non formal	10	43	7.53	0.04*
Primary	2	9		
Secondary	2	30		
Tertiary	5	85		
Religion				
Islam	16	144	0.73	0.73
Christian	3	23		
Tribe				
Hausa	10	101	4.51	0.41
Fulani	4	17		
Hausa/Fulani	3	18		
Igbo	0	15		
Yoruba	1	10		
Others	1	6		

X²= Chi square value, *= Significant P-value



Table 3 shows statistically significant association was only seen between the number of visits and patients' satisfaction ($p= 0.01$), and between education level and patients' satisfaction ($p= 0.04$), this is shown in Table 3.

Discussion of Findings

Majority of the participants have high level of satisfaction with physiotherapy services. This is similar to another Nigerian study that was conducted in the Southern part of the country where satisfaction of physiotherapy services were surveyed for both private and public clinics and the satisfaction levels were high in both public and private centers (Odebiyi et al., 2009). The finding of this study is interesting as there is a big difference in culture and literacy level between the Southern part of Nigeria and the North, but satisfaction to physiotherapy services in both regions is found to be high. This may indicate professionalism among physiotherapists across Nigeria. Also, in support of our findings, Chetty et al (Chetty et al., 2015), a South African study reported that majority of amputee patients who received physiotherapy interventions were satisfied with the services. Similarly, the finding of this study is in accordance with a Malaysian study (Mahdzir & Ismail, 2012) where patients receiving physiotherapy services were moderately satisfied. Physiotherapy services are new and emerging in Malaysia and that may be an explanation to the moderate level satisfaction reported while high level satisfactions are reported in Nigeria and South Africa where physiotherapy services have been available for over half a century. Comparably, Tennakoon and de Zoysa (2014) reported 60% of patients to be moderately satisfied with physiotherapy services in Sri Lanka where physiotherapy services are also emerging. Therefore, satisfaction to outpatient physiotherapy services in our study is in agreement with the findings available from other Nigerian and non-Nigerian studies. It points to the fact that, physiotherapy services provided to patients is commended by patients despite other challenges that may affect the service delivery like physiotherapy to patients' ratio, equipment, remuneration and other related factors.

The age group of 30-39 have the highest satisfaction in this study. However, there is no significant association between the patient satisfaction scores and age categories, this implies that age, either young or old in this study do not determine the level of patient satisfaction. The lack of significant association maybe as a result of the participants majorly falling under the age of 60 (>70%). Also, patients younger than 18 years of age were excluded in this study there by limiting comparison of satisfaction level with aged/younger populations.

Also in this study, females have the highest level of satisfaction which is in line with the study conducted by (Hills & Kitchen, 2007b) who reported sex-related differences in satisfaction, with females reporting more satisfaction than males. However, association between gender and patient satisfaction was not significant in this study. Gender, either male or female plays little or no role in determining level of satisfaction from services rendered in this center despite the higher number of female participants reporting high satisfaction. Furthermore, the study also shows that majority of the married participants are satisfied with the treatment received, but no significant association existed between marital status and patient satisfaction. Over 80% of the participants are married and therefore this is not surprising. For the number of visits, 4 visits and 2 visits per



month appeared in the study to be favorable with patient satisfaction. There is also a significant association between number of visits and the patient satisfaction in this study. The implication of this is that if the frequency of visit is moderately spaced, patients are likely going to be satisfied than when the appointment is sparingly spaced like 1 visit per month or densely spaced like 8 visits per month as observed in this study. The satisfaction seen could also be explained by the fact that patients not having to come for clinic more than once per week have adequate time and opportunity to attend to other personal needs. This is supported by Mahdizir and Ismail (2012) who shows that frequency of visit has a strong influence on the overall satisfaction, they reported that patients with moderate physiotherapy visits of about three to four times per month are more satisfied than those with less number of visits.

From the perspective of education level, those that have attained tertiary education appeared to be more satisfied than others in this study. There is also statistically significant association between satisfaction scores and education level. This may be attributed to the fact that majority of them attended tertiary institution and hence are educated thereby putting them at the advantage of being more aware about health-related issues and more accessible to health care facilities and services. More so, literacy level in Northern part of Nigeria where this study was conducted is reported to be low (Iheonu & Urama, 2019) and as such educated patients may have upper hands in understanding concepts explained by their physiotherapists. Back care instructions/explanation during treatment and after treatment or even individual knowledge that could be acquired by this category is likely to be better understood than others. Different studies have reported higher education level to be associated with higher treatment satisfaction level among various ailments (Biderman et al., 2009).

Both Muslims and Christians that participated in the study are highly satisfied and there is no statistically significant association between religion and patient satisfaction. Finally, the result also shows that majority who are Hausa speaking have the highest satisfaction, reasons could be associated with the fact that majority of the patients and the physiotherapists speak a common language, and hence, patients can effectively communicate with their physiotherapists. However, no statistically significant association between the ethnicity and the patient satisfaction in this study.

Conclusion

Satisfaction is high among LBP patients attending an out-patient physiotherapy unit in Kano, Nigeria. Education level and number of visits are associated with patients' level of satisfaction

References

- Adhikari, M., Paudel, N.R., Mishra, S.R. *et al.* (2021). Patient satisfaction and its socio-demographic correlates in a tertiary public hospital in Nepal: a cross-sectional study. *BMC Health Serv Res* **21**, 135.
- Afolabi, M. O., Irinoye, A., & Adegoke, A. (2013). Health-seeking behaviour and student perception of health care services in a university community in Nigeria.
- Avis, M., Bond, M., & Arthur, A. (1995). Satisfying solutions? A review of some unresolved issues

Shittu, A., Ya'aqub, N. A., Sumaila, F. G. & Mukhtar, N. B. (2023)



- in the measurement of patient satisfaction. *Journal of advanced nursing*, 22(2), 316-322.
- Beattie, P., Turner, C., Dowda, M., Michener, L., & Nelson, R. (2005). The MedRisk instrument for measuring patient satisfaction with physical therapy care: a psychometric analysis. *Journal of Orthopaedic & Sports Physical Therapy*, 35(1), 24-32.
- Balogun J.B. (2020). The path to our destiny: The transitioning of physiotherapy in Nigeria from occupation to a true profession. *Journal of the Nigeria Society of Physiotherapy*, 19(1), pp. 19-35,
- Bello B., Adebayo HB. (2017). A Systematic Review on the Prevalence of Low Back Pain in Nigeria. *Middle East Journal of Rehabilitation and Health*, 4(12).
- Biderman, A., Noff, E., Harris, S. B., Friedman, N., & Levy, A. (2009). Treatment satisfaction of diabetic patients: what are the contributing factors? *Fam Pract*, 26(2), 102-108.
- Biyani, A., & Andersson, G. B. (2004). Low back pain: pathophysiology and management. *JAAOS-Journal of the American Academy of Orthopaedic Surgeons*, 12(2), 106-115.
- Chandra. S. Ward, P., Mohammadnezhad, M. (2019). Factors Associated with Patient Satisfaction in Outpatient Department of Suva Sub-divisional Health Center, Fiji: A Mixed Method Study. *Frontier in Public Health*, 7
- Chetty, V., Dunpath, T., Meghnath, S., Mothalal, S., Sewmungal, V., Kunene, U., & Ntshakala, T. (2015). Satisfaction and adherence of patients with amputations to physiotherapy service at public hospitals in KwaZulu-Natal, South Africa. *Afr Health Sci*, 15(2), 450-456.
- Djordjevic I., Vasilievic D. (2019). The Effect of Sociodemographic Factors on the Patient Satisfaction with Health Care System, *Serbian Journal of Experimental and Clinical Research*, 20(3)
- Foster, N. E., Anema, J. R., Cherkin, D., Chou, R., Cohen, S. P., Gross, D. P., Ferreira, P. H., Fritz, J. M., Koes, B. W., & Peul, W. (2018). Prevention and treatment of low back pain: evidence, challenges, and promising directions. *The Lancet*, 391(10137), 2368-2383.
- Girbés, E. L., Meeus, M., Baert, I., & Nijs, J. (2015). Balancing “hands-on” with “hands-off” physical therapy interventions for the treatment of central sensitization pain in osteoarthritis. *Man Ther*, 20(2), 349-352.
- Guadie, Y.G., Kibret, A.K., Adem, K.S. *et al.* Patient’s satisfaction in physiotherapy outpatient departments of Amhara regional comprehensive specialized hospitals, Ethiopia. *BMC Health Serv Res* 22, 1011 (2022). <https://doi.org/10.1186/s12913-022-08338->
- Hardy, G. E., West, M. A., & Hill, F. (1996). Components and predictors of patient satisfaction. *British Journal of Health Psychology*, 1(1), 65-85.
- Hills, R., & Kitchen, S. (2007a). Satisfaction with outpatient physiotherapy: a survey comparing the views of patients with acute and chronic musculoskeletal conditions. *Physiother Theory Pract*, 23(1), 21-36.
- Hills, R., & Kitchen, S. (2007b). Toward a theory of patient satisfaction with physiotherapy: Exploring the concept of satisfaction. *Physiother Theory Pract*, 23(5), 243-254.
- Houts, P. S., Yasko, J. M., Benham Kahn, S., Schelzel, G. W., & Marconi, K. M. (1986). Unmet psychological, social, and economic needs of persons with cancer in Pennsylvania. *Cancer*, 58(10), 2355-2361.



- Iheonu, C., & Urama, N. E. (2019). Addressing poverty challenges in Nigeria.
- Jackson, J. L., & Kroenke, K. (1997). Patient satisfaction and quality of care. *Mil Med*, 162(4), 273-277.
- Linder-Pelz, S. (1982). Toward a theory of patient satisfaction. *Social science & medicine*, 16(5), 577-582.
- Mahdzir, M. N., & Ismail, A. (2012). Patient satisfaction with services in physiotherapy clinics: a cross sectional study at teaching hospitals in Klang Valley. *BMC Public Health*,
- Maher, C., Underwood, M., & Buchbinder, R. (2017). Non-specific low back pain. *The Lancet*, 389(10070), 736-747.
- Manzoor F., Wei L., Hussain A., Asif M., Shah S.I.A. (2019). Patient Satisfaction with Health Care Services; An Application of Physician's Behavior as a Moderator. *Int J Environ Res Public Health*,16(18):3318.
- Morris, L.D., Daniels, K.J.,Ganguli, B. *et al.* (2018). An update on the prevalence of low back pain in Africa: a systematic review and meta-analyses. *BMC Musculoskeletal Disorder*,19(196)
- Mukhtar, N. B., Meeus, M., Gursen, C., Mohammed, J., De Pauw, R., & Cagnie, B. (2022). Effectiveness of hands-off therapy in the management of primary headache: a systematic review and meta-analysis. *Eval Health Prof*, 45(2), 183-203.
- Nwankwo, O. N., Ani, O. E., Akpoke, M., & Ugwa, E. A. (2019). Determinants of choice of place of delivery among women attending two referral hospitals in Kano North-West Nigeria. *Nigerian Medical Journal*, 60(2), 68.
- Odebiyi, D., Aiyejusunle, C., Ojo, T., & Tella, B. (2009). Comparison of patients satisfaction with physiotherapy care in private and public hospitals. *Journal of the Nigeria Society of Physiotherapy*, 17(1), 23-29.
- Olaleye, O. A., & Lawal, Z. I. (2017). Utilization of physiotherapy in the continuum of stroke care at a tertiary hospital in Ibadan, Nigeria. *Afr Health Sci*, 17(1), 79-87.
- Spencer, M. D., Hamp, T. J., Reid, R. W., Fischer, L. M., Zeisel, S. H., & Fodor, A. A. (2011). Association between composition of the human gastrointestinal microbiome and development of fatty liver with choline deficiency. *Gastroenterology*, 140(3), 976-986.
- Stillier K, Wiles L. (2008). Patient satisfaction with the physiotherapy service in an intensive care unit. *South African Journal of Physiotherapy*, 64(1):43–7
- Tennakoon, T., & de Zoysa, P. (2014). Patient satisfaction with physiotherapy services in an Asian country: A report from Sri Lanka. *Hong Kong Physiotherapy Journal*, 32(2), 79-85.
- Ware Jr, J. E. (1978). The measurement and meaning of patient satisfaction. *Health Med Care Serv Rev*, 1, 3-15.
- Xesfingi, S., Vozikis, A. (2016). Patient satisfaction with the healthcare system: Assessing the impact of socio-economic and healthcare provision factors. *BMC Health Service Resources* 16(94)