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ORIGINAL RESEARCH ARTICLE

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# Women's knowledge of physiotherapy during pregnancy: a mixed study

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## Abstract

**Background** Many women may not be aware of physiotherapy in pregnancy. The objective of this study was to assess the level of awareness of physiotherapy in pregnancy among pregnant women in the Kisii Teaching and Referral Hospital (KTRH), Kenya.

**Methods** A mixed study was conducted on ANC mothers, ANC nurses, and physiotherapists. Consecutive sampling was employed for the quantitative study (101 participants) and a purposive sample of 15 participants for the qualitative study. Questionnaire and interview guides were utilized for data collection. SPSS version 27 was applied for quantitative data analysis, while thematic content approach analyzed qualitative data.

**Results** One hundred one ANC mothers participated in the study; the mean age was 27.3 year. Forty percent ($n=40$) had attained high school education; 54% ($n=55$) lived in the urban area. Seventy-five percent ($n=76$) were knowledgeable on the significance of antenatal care; however, only 27% ($n=27$) attended the first ANC visit, and the numbers tapered with subsequent visits to 2% ($n=2$) for the 6th visit. Eighty-five percent ($n=86$) did not know about physiotherapy during pregnancy, while a meager 15% ($n=15$) pregnant women had knowledge regarding physiotherapy in pregnancy. Fifty-three percent of pregnant women had no source of knowledge about physiotherapy; 22% experienced LBP as a complication during the pregnancy that would be managed by physiotherapy.

Interviews elicited three themes which highlighted low knowledge of physiotherapy in pregnancy, low uptake of ANC, and the challenges facing physiotherapy education program in ANC.

**Conclusion** There was low knowledge on physiotherapy among ANC mothers despite the need for this service. Low education levels and staff shortage came out strongly as the main challenges. Programs should be instituted to empower women with lower educational status to seek for apt knowledge on all relevant services during ANC. Likewise, the government should improve staff establishment in public hospitals to facilitate ANC educational programs for healthcare providers and mothers.

**Keywords** Antenatal care, Pregnancy, Physiotherapy, Exercises, Complications

## Introduction

Pregnancy comes with multiple physiological changes; this includes alteration in center of mass, supplementary pressure on organs, increased weight, ligamentous, and connective tissue laxity, and postural changes [1]. These changes are normal physiological adaptations to accommodate the developing fetus. However, the changes may affect a woman's health severely [2]. Back pain, pelvic pain, and urinary incontinence affect a woman's health in a relatively short span of time [3]. Over 2/3 of pregnant women experiences back pain, 1/5 experiences pelvic pain, and over 40% experiences urinary incontinence during first pregnancy, with half remaining incontinent at 8 weeks post-partum [3].

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Low back pain (LBP) is the most common cause of sick leave after delivery and affects women's lives dramatically. Low back pain (LBP) negatively impacts on quality of life and significantly affect productivity [3, 4].

Prevention, in addition to conservative management, is the gold standard for many pregnancy related impairements [5]. Kampen et al. [6] in a systematic review showed that specialized physiotherapy was effective in preventing lumbo-pelvic pain in pregnancy. Cochrane review likewise presented significant evidence for strengthening exercises during pregnancy [7]. In 2005, the Canadian Physiotherapy Association and Society of Obstetricians and Gynecologists of Canada issued a joint policy statement on postural health for women and the role of physiotherapy in management of low back pain. The policy statement recommended physiotherapy for prevention and treatment of back and pelvic pain during and after pregnancy [8].

Physiotherapy in pregnancy is not a very known service in Kenya. Kenya, one of the sub-Saharan countries, is struggling with infectious disease; hence, less emphasis is put on physiotherapy-related preventive and rehabilitative services. However, the principal researcher, after interacting with a number of expectant women at ANC clinic of KTRH, realized that most of these women had LBP pain, pelvic pain, and urinary incontinence which could be easily prevented or treated by physiotherapy. Therefore, this study aims to assess women's knowledge of physiotherapy during pregnancy at antenatal care (ANC) in KTRH.

## Method

### Setting

The study was conducted at the Kisii Teaching and Referral Hospital (KTRH). The Kisii Teaching and Referral Hospital is a public hospital located in Kitutu Chache Constituency, Kisii, Kenya. The Kisii Teaching and Referral Hospital is the largest referral hospital in Kisii County with a bed capacity of 450; it provides services to South Nyanza and Western Kenya counties.

### Sampling

A mixed study was conducted. The study population included the following: ANC mothers, ANC nurses, and physiotherapists in KTRH. Consecutive sampling was employed for the quantitative component [9]. The Yamane method yielded 120 participants. A questionnaire was developed and validated for data collection.

A purposive sample of 6 nurses and 9 physiotherapists with more than 5 years working in the Obstetricians and Gynecology Department was considered. The sample was further conveniently sampled based on participants availability at the time of data collection. Interview guide was used for data collection; participants provided information on knowledge of physiotherapy to ANC mothers, uptake of physiotherapy services during pregnancy, and challenges facing physiotherapy during ANC. Ethical approval was obtained from the Institutional Research and Ethics Committee (MTRH/MU-IREC No. 37/2/23). Informed written consent was obtained from the participants and the guardians (for under 18 years mother) before commencing interviews. Interviews were conducted by researcher in English and lasted between 45 min and 1 h and were audio-recorded. Saturation was reached with the 5th nurse and 7th physiotherapist. However, the 6th nurse and 8th and 9th physiotherapists were interviewed since a prior appointment had been made, and the interviews were included in the study.

### Data analysis

Quantitative data was entered and cleansed by two data capturers using Microsoft Excel and SPSS version 27. A double entry system was used for quality assurance. Descriptive statistics was performed in order to convert independent variables into frequencies and percentages. Descriptive data analysis is presented in figures and tables.

One data coder manually reviewed the transcripts for qualitative data and analyzed by thematic content approach, which involved identifying codes and categorizing patterns [10, 11]. Interviews were firstly read for accuracy and then revised to identify the developing themes and potential incongruities [12]. Upon completion of all interviews, the whole set of transcripts was read to obtain a sense of the unbroken and to generate a coding system based on insights identified from the data. The codes were them related to the data to improve the coding development and to determine potential categories [12]. Subsequently, categories were established, and they served to organize codes into meaningful clusters. Codes and categories were collapsed to evaluate evolving themes until the point was reached where no new information pertaining to the study question was created [13]. The credibility and rigor of the analysis was aided by co-analysis of the transcript by fellow researchers and continued re-examination of the emergent data throughout the process. Arbitrary initials were used to distinguish the participants while ensuring confidentiality. These initials are used in the paper.

## Results

### Quantitative

#### *Sociodemographic information*

A total of 120 questionnaires were distributed among ANC mothers. One hundred one ANC mothers participated in the study, giving a response of 84.2%; the

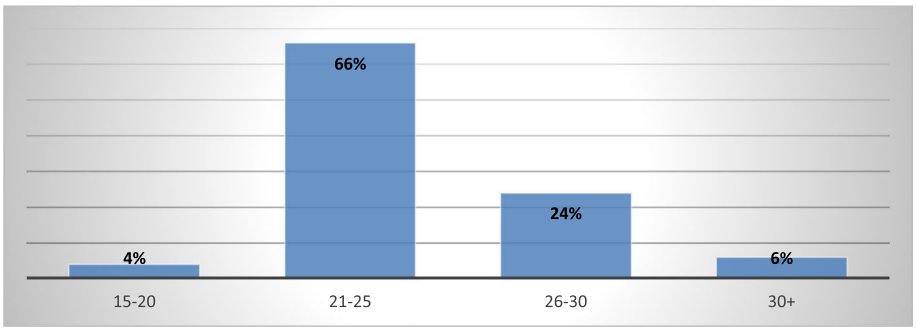


**Fig. 1** Age

**Table 1** Marital status of participants ($n=101$)

| Marital status | % | Total |
|---|---|---|
| Married | 59 | 60 |
| Divorced | 19 | 19 |
| Widowed | 1 | 1 |
| Single | 21 | 21 |
| Total | 100 | 101 |

mean age of the participants was 27.3 year. Minimum age was 15 years, and maximum age was 40 years; 4% ($n=4$) were between 15 and 20 years, 66% ($n=67$) were between 21 and 25 years, 24% ($n=24$) were between 26 and 30 years, and 6% ($n=6$) was between over 30 years (Fig. 1).

### *Marital status of participants*

Of the 101 participants, 59% ($n=60$) were married, while 1% ($n=1$) was widowed (Table 1).

### *Educational level of participants*

Forty-one % ($n=41$) had attained high school education, 32% ($n=32$) had college, or university education, 15% ($n=15$) had primary education, while a meager 13% ($n=13$) had no formal education (Fig. 2).

### *Area of residence*

Fifty-four percent ($n=55$) lived in the urban area, while 46% ($n=46$) live in the rural area (Fig. 3).

### *Knowledge on the importance of antenatal clinic (ANC)*

Seventy-five percent ($n=76$) were knowledgeable on the significance of antenatal clinic (ANC), while 5% ($n=5$) did not understand the importance ANC. On the contrary, 20% ($n=20$) of the respondents were not sure whether they knew the importance of ANC or not (Fig. 4).

### *Frequency of antenatal visits*

First ANC visit had 27% ($n=27$) attendance, and the numbers tapered with subsequent visits to 2% ($n=2$) for the 6th visit as illustrated in Fig. 5.

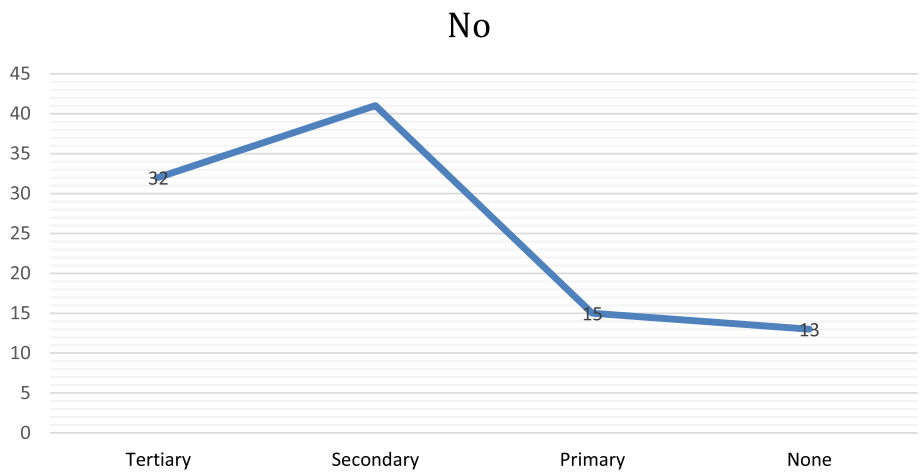


**Fig. 2** Level of education

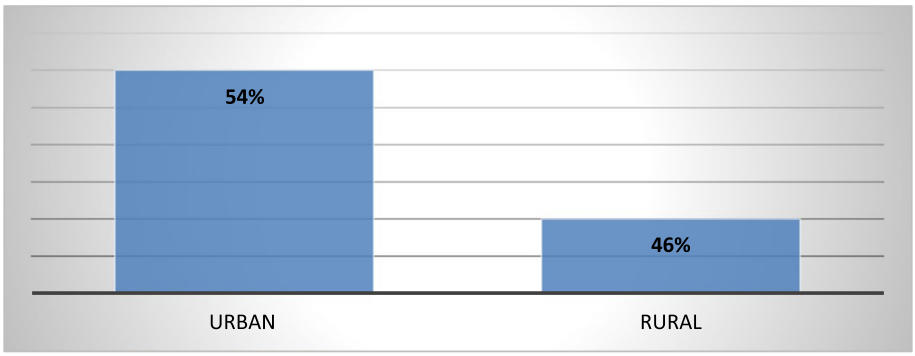


**Fig. 3** Area of residence

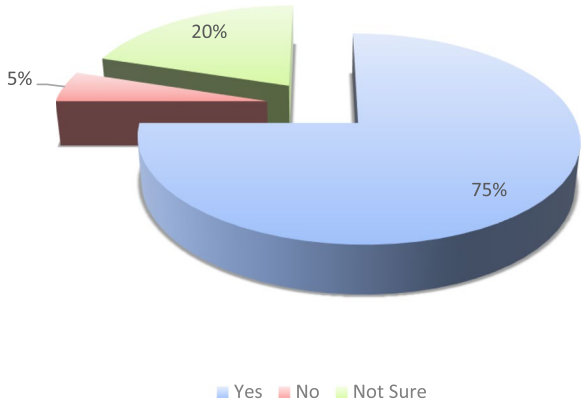


**Fig. 4** Knowledge on the importance of ANC clinic ($n=101$)

***Knowledge about physiotherapy among pregnant women***

Eighty-five percent ($n=86$) did not know about physiotherapy service during pregnancy, while a meager 15% ($n=15$) pregnant women had knowledge regarding physiotherapy in pregnancy (Fig. 6).

***Source of information on physiotherapy***

Data showed that 53% ($n=54$) of pregnant women have no source of knowledge about physiotherapy; only 10% ($n=10$) became aware of physiotherapy during their visit to the clinic elsewhere, 16% ($n=16$) through the news/TV, and 21% ($n=21$) through a friend (Fig. 7).

***Complications during pregnancy requiring physiotherapy interventions***

Twenty-two percent ($n=22$) experienced complications during the pregnancy that would be managed by physiotherapy interventions as illustrated by Fig. 8.

**Qualitative results**

***Characteristics of the participants***

The study consisted of 15 participants (6 nurses and 9 physiotherapists) with a mean age of 39.4 years (Table 2). Table 2 demonstrates the characteristics of the healthcare providers that were considered purposively.

The years of experience in ANC varied from 5 to 26 years. Participants provided information on ANC, knowledge of physiotherapy in pregnancy, and challenges

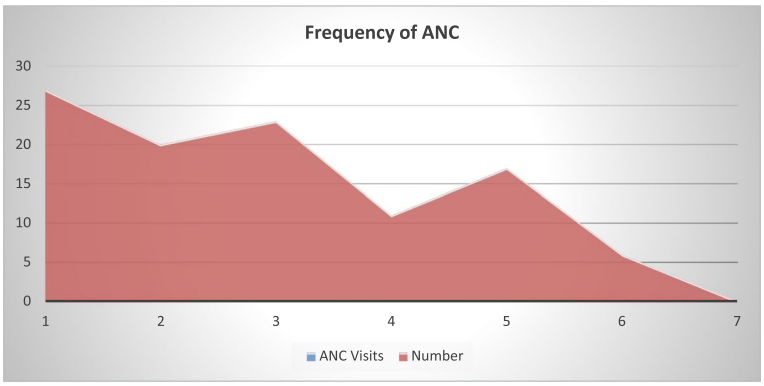


**Fig. 5** Frequency of antenatal visits ($n=101$)

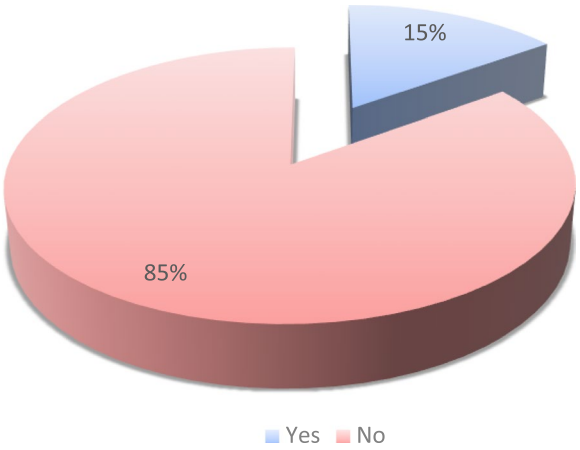


**Fig. 6** Knowledge about physiotherapy among pregnant women (*n* = 101)

facing physiotherapy during ANC. Interviews were done by the researcher.

## Main findings

Three dominant themes and several categories emerged and are presented inTable 3. Quotes to support the themes will be presented on the following sections.

### Knowledge and perception of physiotherapy among ANC mothers

Few nurses reported that very little was known about physiotherapy by the ANC mothers particularly in relation to preventive care.

> *"Most of this mother have no idea that physiotherapists have a role in antenatal care, they think that physiotherapists in only done in case of complications such as back pain or when one develops urinary incontinence during pregnancy or after delivery" (P6)*

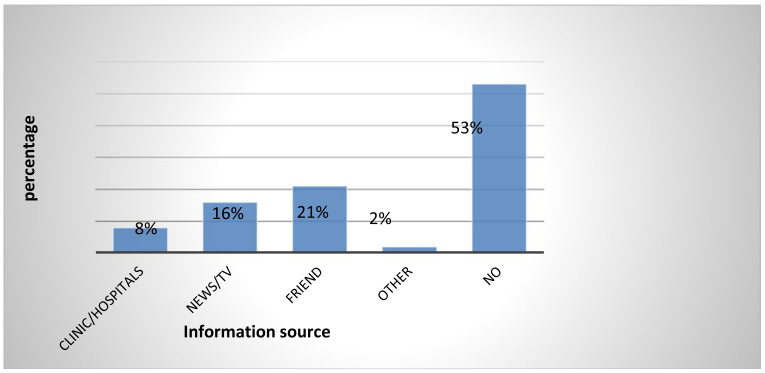


**Fig. 7** Source of information on physiotherapy (*n* = 101)

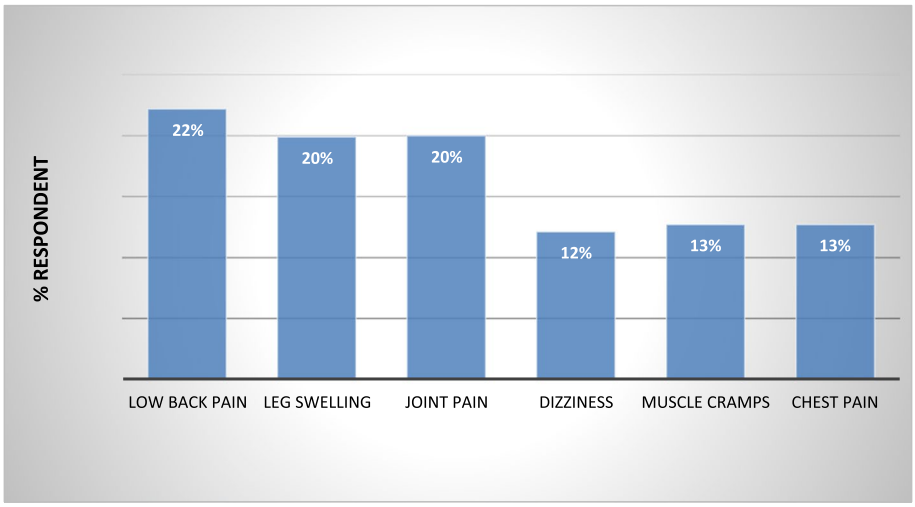


**Fig. 8** Complication during pregnancy (*n* = 101)

**Table 2** Sociodemographic profile of the healthcare providers

| Participant code | Age | Occupation | Years of experience | Number of years in ANC |
|---|---|---|---|---|
| P1 | 37 | Nurse | 13 | 7 |
| P2 | 32 | Physiotherapy | 7 | 5 |
| P3 | 34 | Physiotherapy | 5 | 5 |
| P4 | 40 | Physiotherapy | 15 | 7 |
| P5 | 42 | Nurse | 16 | 5 |
| P6 | 35 | Nurse | 10 | 6 |
| P7 | 45 | Physiotherapy | 19 | 10 |
| P8 | 37 | Physiotherapy | 12 | 8 |
| P9 | 48 | Physiotherapy | 24 | 12 |
| P10 | 33 | Physiotherapy | 6 | 5 |
| P11 | 40 | Physiotherapy | 14 | 5 |
| P12 | 50 | Nurse | 26 | 11 |
| P13 | 52 | Physiotherapy | 27 | 13 |
| P14 | 31 | Nurse | 6 | 6 |
| P15 | 35 | Nurse | 11 | 7 |

On the contrary, one nurse stated that knowledge of physiotherapy in ANC depended on the nature of the facility where ANC is being undertaken. The healthcare providers indicated that in private facilities, antenatal care is quite comprehensive and includes physiotherapy program as opposed to public facilities. Expectant women are educated on pregnancy and everything that comes with it.

> *"In public facilities, most of the pregnant women are clueless of physiotherapy in pregnancy. This is because there is no or very little education programs for pregnant women, they just come for normal checkup. So, they don't get an opportunity to learn what happens to the body during pregnancy and the various healthcare providers involved, their roles and the benefits. Private hospitals have a comprehensive ANC package, which includes physiotherapy. Mothers are taught about physiotherapy from day one. They also have programs for group physio during pregnancy. So, it all depend with where one goes for ANC" (P15)*

**Table 3** Emerging themes and categories

| Themes | Categories |
|---|---|
| Knowledge of physiotherapy among ANC mothers | ■ Scanty knowledge, low emphasis, priority |
| Uptake of physiotherapy services during pregnancy | ■ Low uptake<br>■ Resources: financing treatment cost and transport to the facility |
| Challenges facing physiotherapy service delivery during ANC | ■ Lack of education<br>■ Staff shortage<br>■ Distance and bad roads<br>■ Cost |

One physiotherapist explained that only mothers with high levels of education are curious to learn about physiotherapy and pregnancy. Some of them were known to even look out for facilities that would offer group physiotherapy in addition to Lamaze (a program for birth preparation). She explained of antenatal classes for pregnant women and expounded on the involvement in a Lamaze program while working in a private hospital; however, on coming to a government facility, antenatal physiotherapy care was not available.

> *"Most of the educated women know these things, some will even call for enquiry about physiotherapy programs for pregnant women. I remember one pediatrician who would even go to a private facility for group physio and Lamaze when she was pregnant." (P2)*

There was some misinformation about physiotherapy as perceived by the expectant women. One physiotherapist explained that most of the ANC mothers perceived physiotherapy as just walking and were adamant when advised on various exercises or ergonomics.

> *"Most of the pregnant women think that physiotherapy is about walking. They often times insists on walking even after advice from a physiotherapy" (P9)*

#### Uptake of physiotherapy services during pregnancy

One physiotherapist explained that even for the small percentage of mothers that are aware of the relevance of physiotherapy in pregnancy, they do not attend the session. Physiotherapy is not considered as a priority.

> *"There's are a small percentage of expectant mothers that are aware of physiotherapy in pregnancy. However, they don't attend sessions, it's not a priority to them" (P8)*

One nurse reported that most of the young mothers were not interested in ANC; they only attend in order to have a "soft-landing" during delivery. Some of mothers would attend ANC once for the entire period of 9 months.

> *"Most of the young mothers are not interested in ANC, let alone physiotherapy. They come for ANC because they know one cannot come for delivery here, if they had not done ANC. They just do it for the sake of it" (P15)*

## Challenges facing physiotherapy during ANC

### Education

Most of the respondent reported that there was no special program that would educate pregnant women on the relevance of physiotherapy in pregnancy and after child birth.

> *"We basically don't have any arrangement for education to pregnant mothers, on the importance of physiotherapy, but we know that it is very important" (P5).*

One nurse brought in a different conversation to the topic. She reported that there was a bigger problem because some of the nursing staff at the facility had no sufficient knowledge on physiotherapy during pregnancy. She highlighted that they do not educate mothers due to insufficient knowledge.

> *"The ANC usually does health talks, but we have not had any, educating the ANC mothers on the relevance of physiotherapy. We too don't understand physiotherapy in pregnancy, you don't expect us to teach something we don't know" (P12)*

Another nurse had another statement.

> *"By the way, does a healthy pregnant mother require physiotherapy? Personally, I have never sent any mother for physiotherapy because I do not know whether a pregnant woman needs a physiotherapist, may be you guys should come and teach us first. I thought physiotherapy only comes inn when mothers have complications such as back pain or VVF" (P5)*

Majority of the participants unanimously agreed that it was important to introduce education programs, where the healthcare providers and the mothers could learn more on physiotherapy in pregnancy.

> *"It is important to set up educational program on ANC for specifically nurses and the mothers. Many mothers leave the hospital with back pain, some of which has far reaching effect, yet we could be advising then to start physiotherapy early for preventive purposes" (P11)*

### Staff

All physiotherapists attributed the lack of education programs to understaffing. K.T.R.H had 10 physiotherapists responsible for inpatient and outpatient physiotherapy services as well as community-based rehabilitation.

> *"It is quite challenging to organize physiotherapy education. We have 10 physiotherapists, responsible for the hospital and for community-based rehabilitation. The hospital has inpatient, ICU, and we have the outpatient physiotherapy. It very difficult for us, we just do what we can" (P8).*

### Financial constrain

Participants pointed that the cost of ANC could be high, and not all mothers were financially endowed with resources needed for a comprehensive ANC care. One nurse reported that a good number of mothers had the National Health Insurance cover provided by the government; however, the cover takes care of the very basic services. Therefore, most of the mothers would be forced to pay out of pocket for physiotherapy services.

> *"Most mothers have basis NHIF cover, you know NHIF covers just basic ANC and delivery, these other things, one has to pay" (P4).*

All participants reported that physiotherapy services were not easily available in peri-urban and rural areas. Therefore, even for mothers that knew the relevance of physiotherapy in pregnancy, the travel distance and cost would be overwhelming.

> *"You and I know that physiotherapy is available in national and county hospitals. Some of these mothers come from far, they can only go to a health centre near their home and work with what is available at the health centre. Traveling costs, long distance and our bad roads makes everything complicated" (P.07).*

## Discussion

Our study examined the level of awareness of physiotherapy among antenatal mothers at the Kisii Teaching and Referral Hospital, Kenya. Findings indicated that majority of the participants (66% ($n=67$)) were between 21 and 25 years, 59% ($n=60$) were married, 40% (40) had attained secondary education, and 54% (54) lived in the urban area.

This study did not find any association between social demographic factors. However, in an interview, one healthcare provider indicated that education was related to the pursuit for physiotherapy service which concurs with Muyunda et al. [14] and Vilma et al. [15]. The authors found that education levels were significantly linked with optimal antenatal care (ANC) attendance.

Educated pregnant women are more likely to attend ANC and all the services that appertains to their well-being and the well-being of the child [14]. Educated women have consistently been found to have better health seeking behavior and are further empowered to seek and use health information [16, 17]. This leads them

to appreciate the importance of ANC [17]. As education levels have shown to be independently associated with appropriate ANC, it is important to empower a woman with lower educational status to initiate ANC as aptly as possible [18]. Research has shown that educational level is linked to lower morbidity and better quality of life [19].

Maternal health care (MHC) is a crucial service for improving health outcomes of mothers and babies, as conceptualized in Sustainable Development Goals (SDG) 3 [20]. These services ensure early detection and management of complications [21]. Our study showed that 75% ($n=76$) of our participants were knowledgeable on the significance of ANC. However, data indicates that only 27% ($n=27$) attended ANC, and the numbers tapered with subsequent visits to 2% ($n=2$) for the 6th visit. This in contrary to the World Health Organization (WHO) recommendations [22]. Antenatal care should be initiated within the first trimester of gestation with at least four and optimally eight visits during the pregnancy [16]. Kenya implemented a free maternity policy (FMP) through the Universal Health Coverage (UHC) and National Hospital Insurance Fund (NHIF) as a driver [23]. Even with that, data indicate that ANC attendance in the current study was still low. One participant alluded to the fact that distance coupled with bad roads and travel cost were some of the challenges causing poor attendance. This is supported by Nassib et al. [24] in a study on rehabilitation in Africa. Likewise, low ANC attendance may have been contributed to by the use of traditional birth attendance, which is still a common practice in Kenya [25].

Antenatal physiotherapy plays a key role in the health of the fetus and the pregnant woman [16, 26]. Awareness towards the same is very important to motivate women to attend ANC physiotherapy [26]. However, data on knowledge on physiotherapy among pregnant women in our study was dismal; a meager 15% ($n=15$) mothers had knowledge regarding physiotherapy in pregnancy. Low knowledge is comparable with Sheth et al. [26] and Okeke et al. [27]. The authors in a cross-sectional study established that knowledge regarding physiotherapy in ANC was fairly low in Nigeria. Similarly, Nayak et al. [28] demontrated that a majority of Indian pregnant women had inadequate knowledge on physiotherapy in pregnancy. Low knowledge in the current study can be linked to sources of information; 53% ($n=56$) of mothers had no source of information on physiotherapy, and 10% ($n=10$) became aware of physiotherapy during their visit to the clinic elsewhere, 16% ($n=16$) through TV, and 21% ($n=21$) through a friend. This is likewise echoed in an interview, "We basically don't have any arrangement for education to pregnant mothers, on the importance of physiotherapy, but we know that it is very important" (P13). Vilma et al. [15] in a study regarding knowledge on exercises during pregnancy showed that 57% of pregnant mothers got health information from the Internet, while 27% of information were from healthcare providers. All women in the study felt the need for more knowledge about the effect of exercise during pregnancy [15]. The author advices that physiotherapists should upscale education to pregnant mothers and other healthcare providers on the relevance of physiotherapy [15].

Despite little knowledge on physiotherapy among pregnant mothers, a substantial percentage experienced complications that required physiotherapy; 22% ($n=22$) had low back pain, 20% ($n=20$) had lower limb swelling, and 20% ($n=20$) had joint pain among others. These complications would be prevented or managed through physiotherapy interventions as suggested by Ojukwu et al. [29].

Interviews conducted in our study did shed light on challeges faced by healthcare providers, which in a way answers a question on why there was low knowledge on physiotherapy among ANC mothers. Data revealed that acute staff shortage was a major impediment to education on physiotherapy in pregnancy to healthcare providers and ANC mothers. It was noted that due to staff shortage, there were no physiotherapy programs in public hospitals, contrary to private facilities: "In public facilities, most of the pregnant women are clueless of physiotherapy. There are no programs for education……Private hospitals have a comprehensive ANC package, which includes physiotherapy."

The quality-of-service delivery in ANC is an important determinant of outcomes. The staff establishment is one significant predictor of this quality. The results of the current study resonate with Hussen and Worku [30] in a facility-based conventional study. The authors established that the quality of ANC and clients' satisfaction were low in public hospitals in India. On the contrary, Mohamoud and Mash [31], in a study on the evaluation of quality of service in private hospitals in Kenya, revealed a comprehensive and high-quality service delivery. In a similar study, Strong et al. [32] showed positive experiences of quality of care in private facilities linked broadly to adequate staff, hence shorter waiting times and more provider time spent with mothers and newborns.

## Conclusion

The study established that there was low knowledge on physiotherapy among ANC mothers despite the need for this service. Low education levels and staff shortage came out strongly as the main challenges. Staff shortage ultimately lowers the quality of ANC for pregnant mothers. Programs should be instituted to empower women with lower educational status to seek for apt knowledge on all relevant services during ANC.

Likewise, the government should improve staff establishment in public hospitals to facilitate ANC educational programs for healthcare providers and mothers.

## Limitations

The findings of this study may not be generalized for all pregnant mothers, as this study was only exposed to ANC mothers in a public hospital. However, the findings help us to gain insight into the level of awareness of physiotherapy in pregnancy and the challenges facing awareness of physiotherapy among pregnant women in Kenya.

### Abbreviations

| | |
|---|---|
| ANC | Antenatal care |
| KTRH | Kisii Teaching and Referral Hospital |
| LBP | Low back pain |
| MTRH | Moi Teaching & Referral Hospital |
| MU | Moi University |
| IREC | Institutional Research and Ethics Committee |
| MHC | Maternal health care |
| SDG | Sustainable Development Goals |
| WHO | World Health Organization |
| FMP | Free maternity policy |
| UHC | Universal Health Coverage |
| NHIF | National Hospital Insurance Fund |

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### Authors' contributions

Naomi Kingau conceived the presented idea, developed the theory, and collected the data, with Martin Dagala. All authors discussed the results and contributed to the final manuscript.

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### Availability of data and materials

The data underlying this article will be shared upon reasonable request to the corresponding author.

## Declarations

### Ethics approval and consent to participate

Ethical approval was obtained from the Institutional Research and Ethics Committee (MTRH/MU-IREC No. 37/2/23). Participants were informed about the study and its purposes. Informed written consent was obtained before commencing interviews.

### Consent for publication

Written informed consent for the publication of details was obtained from the study participants.

### Competing interests

The authors declare no competing interests.

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