Factors Influencing the Delivery of Preconception Care Services among Nursing and Midwifery Students at Aga Khan University, Kenya

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Abstract
Preconception care (PCC) is crucial in addressing biomedical conditions, social factors, and risky behaviors that may jeopardize a healthy pregnancy. Despite its significance, nurses, and midwives face challenges in comprehending the importance and components of PCC, hindering their ability to provide comprehensive care. Inconsistencies in training curricula and a lack of in-service training leave students ill-equipped for PCC provision. This study, conducted through a cross-sectional quantitative descriptive approach at Aga Khan University, involved 104 nursing and midwifery students selected through random sampling. The overall knowledge of PCC was 63.35%, 28.8% correctly defined PCC and its components, and while 67.3% of respondents had received PCC training during their previous education 75% had not undergone in-service or refresher training. Moreover, 45% had not provided PCC in the past six months, and only 45.2% of facilities had PCC guidelines, indicating potential standardization gaps. While the study focused on nursing and midwifery students, acknowledging a limitation in representing all healthcare professionals involved in PCC, it emphasized the need to integrate PCC education into curricula. Recognizing PCC as a vital health component underscores its significance, shedding light on gaps in continuing education for healthcare providers. Collaboration among health professionals in delivering PCC services is suggested to enhance care quality. Furthermore, the study advocates for guidelines to standardize PCC services, promoting consistent and high-quality care. Overall, the insights garnered can inform strategies to improve the reproductive and maternal health of women and couples through enhanced PCC services. The health belief model was the theory underpinning the study.

Introduction

Preconception Care (PCC) is a comprehensive approach involving intentional management and preventive measuresto addressg biomedical conditions, social factors, and risky behaviors that could jeopardise a healthy pregnancy and its outcomes (Akinajo et al., 2019). Initially targeted at women with chronic medical conditions and those engaging in high-risk social behaviours like alcoholism, smoking, and substance abuse (Collins, 2016), the scope of PCC has broadened over time. It now encompasses all couples of childbearing age, men and women planning to conceive, and the general population, reflecting the recognised benefits beyond identified medical risks (van Voorst, 2017). Despite the evident advantages of PCC, its integration into healthcare services remains incomplete in many countries, resulting in low uptake rates. Certain regions, including Arizona in the United States, Australia, New Zealand, and London, report PCC utilisation rates as low as 27% (Bortolus et al., 2017). In Africa, where maternal health is a significant concern, the average PCC utilisation is 18.72%, with specific areas reporting notably lower uptake, such as North-Western Ethiopia at 9.6% (Tekalign et al., 2021). Rural and urban settings in Kenya exhibit low PCC uptake rates, with figures of 16.5% and 36.5%, respectively (Okemo et al, 2020). Despite including PCC in the Kenya National Reproductive Health Strategy (KNRHS) of 2009–2015, a lack of clear strategies for effective implementation has hindered its widespread adoption (Okemo et al, 2021). Nurses and midwives make up the bulk of the health workforce, equipping them with PCC knowledge. Creating an enabling environment for its provision through policy guidance will increase the uptake.

Furthermore, in Kenya, studies conducted were amongst women and couples who utilise PCC services. Still, there is a shortage of research exploring the knowledge and delivery modalities associated with PCC among healthcare providers. This study therefore recommends training of nurses and midwives at both basic and in-service levels on PCC and suggests PCC delivery modalities to enhance positive pregnancy outcomes.

Literature Review

The primary objectives of this study were to assess the knowledge of preconception care (PCC) services and explore the delivery approaches within the study population. This involved a comprehensive search across databases such as CINAHL, PubMed, Cochrane Library, MEDLINE, UpToDate, and Google Scholar, utilising keywords like pre-conception care services, Pre-conception care knowledge, and Pre-conception care barriers. Exploring the knowledge base surrounding PCC served as the foundation for understanding the cognitive aspects essential for effective PCC provision. Simultaneously, the review delved into practical implementation aspects, encompassing healthcare settings, the responsible cadre of professionals, and integrating PCC into educational curricula.

The effective delivery of PCC services encounters various challenges. Nurses and midwives often grapple with deficiencies in their understanding of PCC's significance, definition, and components, hindering their ability to offer comprehensive preconception care. This challenge is not confined to specific regions, as healthcare providers globally face obstacles due to a lack of knowledge and confidence in delivering PCC. Inconsistencies in nursing and midwifery curricula leave students ill-prepared to provide these essential services. The scarcity of formal education on PCC, especially among midwives (Poels et al., 2017), and gaps in the training of nursing students (Bhatta et al., 2021) contribute to suboptimal PCC implementation.

Additionally, insufficient opportunities for ongoing training and professional development in PCC leave practising nurses and midwives lacking the necessary skills and knowledge for effective

service delivery (Munthali-Nkhoma et al., 2021). Ambiguity regarding the primary cadre responsible for PCC delivery leads to confusion and fragmented care, while determining the ideal healthcare settings for PCC remains challenging due to the absence of clear guidelines, resulting in inconsistent service provision (Bhatta et al., 2021). In Malawi, the absence of policy guidelines on PCC within public healthcare institutions and inadequate coverage of PCC in university curricula contribute to knowledge disparities among healthcare cadres, highlighting the need for standardised training content (Munthali-Nkhoma et al., 2021). In Kenya, existing studies focus on women and couples utilising PCC services, with limited research exploring the knowledge and PCC delivery modalities among healthcare providers.

There is persistent ambiguity regarding the cadre of healthcare providers responsible for delivering PCC services, with each healthcare provider often believing it is the responsibility of others. To ensure clients receive these crucial services, it is imperative that all healthcare providers, irrespective of their cadre, collectively assume responsibility for PCC (Goossens et al., 2018). A study by van Voorst et al. (2017) found varying opinions among respondents, with 67% believing midwives should be the primary providers of PCC services. However, there was a disparity among General Practitioners (GPs), with 42% suggesting midwives as primary PCC caregivers, compared to 40% who believed it was their responsibility (van Voorst et al., 2016). The same study revealed midwives often assessed risk factors for adverse pregnancy outcomes more frequently than GPs (van Voorst et al., 2016).

In conclusion, comprehensive PCC can be effectively delivered when all healthcare providers collectively are responsible for ensuring evidence-based services (Nypaver et al., 2016). However, in the Kenyan context, the cadre of healthcare providers responsible for PCC provision is not specified, nor is it clear whether the services are paid for. Consequently, this study aims to investigate the factors influencing the delivery of preconception care services among nursing and midwifery students at Aga Khan University, Kenya, seeking to illuminate critical aspects of knowledge and provision of PCC among the study population. It will be beneficial to nursing and midwifery students in other colleges.

Method

Study Design

This research employed a quantitative, cross-sectional descriptive design to identify, analyse, and elucidate the factors shaping the utilisation of preconception care among nursing and midwifery students at Aga Khan University, Kenya. Quantitative research involves the collection and analysis of numerical data, and it provides formal methodologies for scrutinising such data, allowing for the identification of patterns, calculation of averages, testing of causal relationships, and enabling predictions and generalisations to broader populations (Bhat, 2019; Kothari, 2019). The chosen descriptive study design aimed to ascertain the current state of the phenomenon under investigation, constituting a fact-finding inquiry that delineates the existing state of affairs (Kothari, 2019). Despite the researcher lacking control over variables, the design facilitated an exploration of the underlying causes of occurrences related to the phenomenon. The cross-sectional approach, also known as 'one-shot' studies, observed the phenomenon at a specific time, providing a comprehensive snapshot of its overall occurrence during the study period.

This design was favoured for its capacity to generate a database that allowed for inferences on characteristics and relationships among the study population (Kothari, 2019). The findings served as a foundation for generalisations within the study population. The researcher chose a descriptive cross-sectional study design to investigate how knowledge and delivery modalities to preconception care influence its implementation in the study population. Given that the study questions could be addressed by data collected in a single setting (Kothari, 2019), the cross-sectional time description was the preferred methodological choice. The health belief model was the study's theory (Health & Services, 2018). While applying this model, the perceived susceptibility and perceived severity were poor outcomes of pregnancy among women who did not get preconception care. The potential positive benefits of receiving PCC are a reduction in maternal and neonatal mortality and morbidity, perceived barriers to action occur when nursing and midwifery students lack the knowledge to enable them to effectively provide PCC services, which should be taught during preservice training and enhanced with in-service training to build confidence in the ability to provide PCC.

Target Population

This study was conducted in Aga Khan University, Nairobi campus. The training institution was chosen since it offers upgrading programmes for practising nurses and midwives from diploma to degree and undergraduate to master's levels. These programmes are open to both local and international students. e. The targeted Nursing and Midwifery student population was selected because it possesses the characteristics necessary for answering research questions. The population comprises student nurses/midwives who have undergone preliminary professional training and offered/are offering nursing and midwifery services including Preconception Care before this study. The population, therefore, knows the importance of Preconception Care, its components, and the delivery modalities. Some were upgrading from diploma to degree level while others were undertaking master's studies. This blend of students was best targeted for the study since they had at least a previous level of nursing/ midwifery training and offered or offered services as they schooled.

Sampling Technique

Sampling Technique: The preferred sampling technique for the study participants was proportionate stratified sampling. This method involves dividing the sample into strata based on homogeneity while ensuring observable characteristics' heterogeneity (Kumar, 2011). Within the target population, the non-overlapping characteristics were students belonging to either nursing or midwifery classes based on their courses, further stratified by the year of study. Proportionate representation ensures a percentage sample representation for every class, considering the number of study elements in each stratum. A total of ten strata were used for data collection, with five classes doing nursing-specific courses and five undertaking midwifery-specific programmes. A sample frame consisting of lists of students in each class was obtained to achieve this equal representation, and a proportionate sample was calculated for every class. The selection process employed a simple random sampling technique within each stratum until the assigned proportionate sample representation was achieved.

Given that classes exhibited homogeneities in the programme they were undertaking the year of entry into the programme and heterogeneity in their demographic characteristics, any male or female student in each class had an equal chance to participate, provided they gave consent. This approach facilitated the reduction of sample bias. It allowed for maximum data collection, enhancing the generalisation of findings and determining the sample size involved using standard formulas,

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including Daniel's formula, Fisher's sample size adjustment formula, and a 20% sample inflation rate to account for potential attritions (Charan & Biswas, 2013), ultimately resulting in a sample size of 104 participants. Daniel's formula was preferred since the nursing and midwifery student population was known, a standard normal deviation set at 1.96 at a 95% confidence level is provided for in the formula, and the researcher set an expected proportion at 0.5 at a 0.05 level of precision (Pourhoseingholi et al., 2013).

Data collection tool

Data collection was conducted through the use of self-administered questionnaires. The decision to employ a questionnaire was driven by the overarching objective of examining factors associated with the delivery of preconception care services, specifically focusing on understanding PCC and its delivery methods. This was best achieved from data collected through standardised responses, including multiple-choice questions, Likert scales, and rating scales in the questionnaire (Stefan, 2018). While acknowledging the potential drawback of limited supplementation of responses as a significant disadvantage associated with questionnaire-based data collection (Yuko Willis Oso, 2016), this method offered extensive coverage at a minimal cost regarding financial resources and effort. Additionally, the questionnaire facilitated the selection of a larger sample, thereby augmenting representativeness and enhancing the study's overall validity (Heale & Twycross, 2015).

Validity and Reliability

To ensure that content is measured to the extent it should, validity is paramount (Heale & Twycross, 2015). Face validity, though seen as a subjective and weak form of validity (Sürücü & Maslakçi, 2020), was enhanced through the input from the researchers, who ensured that the questions in the questionnaire were specific to assessing knowledge of PCC and its delivery modalities. Content validity was guaranteed through the formulation of the questionnaire with sections based on the specific objectives. The validity was ensured by the subjection of the questions in the tool to the Lawshe (1975) formula:

$$CRV = \frac{N_e - \frac{N}{2}}{\frac{N}{2}}$$

Where,
CVR is the Content validity ratio.
N represents the number of experts evaluating items in the instrument
N_e is the Number of experts concurring with the appropriateness of

The researchers accorded
relevance to the items in the tool by awarding each a score of Very Appropriate (2), Appropriate (1), and Inappropriate (0).

Pretesting the Study Tool

The pretesting phase of the questionnaire is a crucial step in developing the study tool. It involves presenting the questionnaire to a group of individuals with characteristics similar to the study population, without providing prior guidance, to identify potential issues that may hinder respondents from answering certain questions (Ikart, 2019). Neglecting this pretesting stage may result in the administration of an uncertain instrument, leading to questionable research outcomes (Ikart, 2019). While it may be challenging to design a perfect questionnaire, according to Ikart (2019), issues such as the time required for questionnaire completion and confusing or frustrating questions can be identified and addressed during pretesting.

The tool-pretesting study primarily aimed to assess the participant's understanding of the questions, followed by refining the questionnaire as necessary (Heale & Twycross, 2015). The researcher conducted the pretest among upgrading nursing students at the Defense College of Health Sciences (DCHS), affiliated with the National Defense University-Kenya (NDU-K). The pretesting sample size aimed at at least 16 respondents, adhering to the rule of thumb for a pilot study, which suggests a size ranging between 12 and 35 participants (Bell et al., 2018). This pretesting exercise assisted in estimating the average time needed for questionnaire completion, and since issues of clarity did not arise, further refinement was not required.

Data Collection Procedure

Between February and April 2023, data was collected from 104 respondents following the pretesting of the questionnaire. The administration of the questionnaire and the consent form was carried out collaboratively by both the principal researcher and research assistants. The researcher or a designated research assistant approached a class of nursing or midwifery students, introducing themselves and providing a clear explanation of the study's purpose and the anticipated time required for questionnaire completion. Willing participants were then invited to raise their hands, after which they were provided with informed consent forms. They were allowed to read, seek clarification where necessary, and sign the consent forms before receiving the questionnaires for completion. This entire process was conducted in a confidential space, as the researcher had secured a room within the AKU premises to ensure enhanced privacy. After completing the consent forms and questionnaires, participants returned them to the interviewer for safekeeping.

Data Analysis

The researcher employed quantitative analysis methods to analyse the data collected according to each objective. Quantitative analysis refers to the analysis of statistics to identify the existence or lack of a mathematical relationship between variables (Waller, 2021). It provides estimates of numerical values that can be used in decision-making by supporting or rejecting the existence of relationships. It enables the determination of whether data collected from samples can support inferences about a population (Ratner, 2017) and forms a basis for making predictions. The purpose of the research, the research questions being asked and the associated hypotheses among other factors like the type of data collected inform the choice of the appropriate quantitative analyses to be used (Ratner, 2017). The researcher utilised IBM's SPSS version 25 due to its ability to offer various visual schematics for various analytical relationships (Denis, 2018).

Knowledge of preconception care was analysed using correlation methods. This is because of the ability of correlation to show whether variables are related (Ratner, 2017). In this case, it was possible to tell whether knowledge of PCC influences its delivery. By correlations focusing on the strengths of relationships between variables where a correlation coefficient that ranges between -1 to +1 indicates how positively variables are related, 0 denoting lack of relationship, and -1 representing the strength of an inverse relationship (Ratner, 2017), the researcher was able to deduce how knowledge of PCC, an independent variable, influences PCC delivery, a dependent variable.

Descriptive statistics were used to analyse how PCC services are delivered. Descriptive analyses that include both measures of central tendency and measures of dispersion (Denis, 2019), were ideal in describing how delivery settings: Cadre of PCC providers; Availability of guidelines; Provider-

initiated delivery, and Consumer-initiated delivery modalities influence the delivery of PCC services. Any hypothesis arising across the study questions were tested with the researcher accepting a 5% chance of error (0.05 probability) at a confidence level of 95%. This was supported by the traditional level of significance that reduces the chances of type I errors (Waller, 2021). Hypotheses are propositions of relationships or differences between variables that can be tested using a range of empirical techniques and allow for the evaluation of the validity of the data collected (Waller, 2021).

Results

Demographic Characteristics

Table 1. Demographic characteristics of participants

Demographic factors	Categories	Frequency (%) N=104
Gender	Male	24 (23.3)
	Female	80 (76.7)
Sub-specialization	Nursing	73 (69.9)
	Midwifery	31 (30.1)
Currently practicing nursing or midwifery	Yes	101 (97.1)
	No	3 (2.9)
Workplace	Public	63 (62.4)
	Private	30 (29.7)
	Faith-based	6 (5.9)
	Self-sponsored	2 (2.0)

Most respondents (42.3%) had been trained as nurses/midwives 6 – 10 years ago, while 12.4% had been trained less than five years ago. 12.4% of the respondents undertook their training more than 20 years ago. The median age bracket since the last training (x ~) was 6 – 10 years, the mean age since the last training was approximately 12.3 years, and the interquartile ratio for the duration since the last training was approximately 1.9. There was no significant association between the place of work and the number of times a nurse or midwife offered PCC services (Pearson Chi-Square = 0.760, Likelihood Ratio = 0.715, and significance level = 0.05). Still, there was a strong positive relationship (N = 104, 2-sided significance Likely Ratio = 0.778, and significance level = 0.05) between the length of time a nurse/midwife had been practising and PCC provision.

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Knowledge of Preconception Care

Figure 1. Definition of PCC

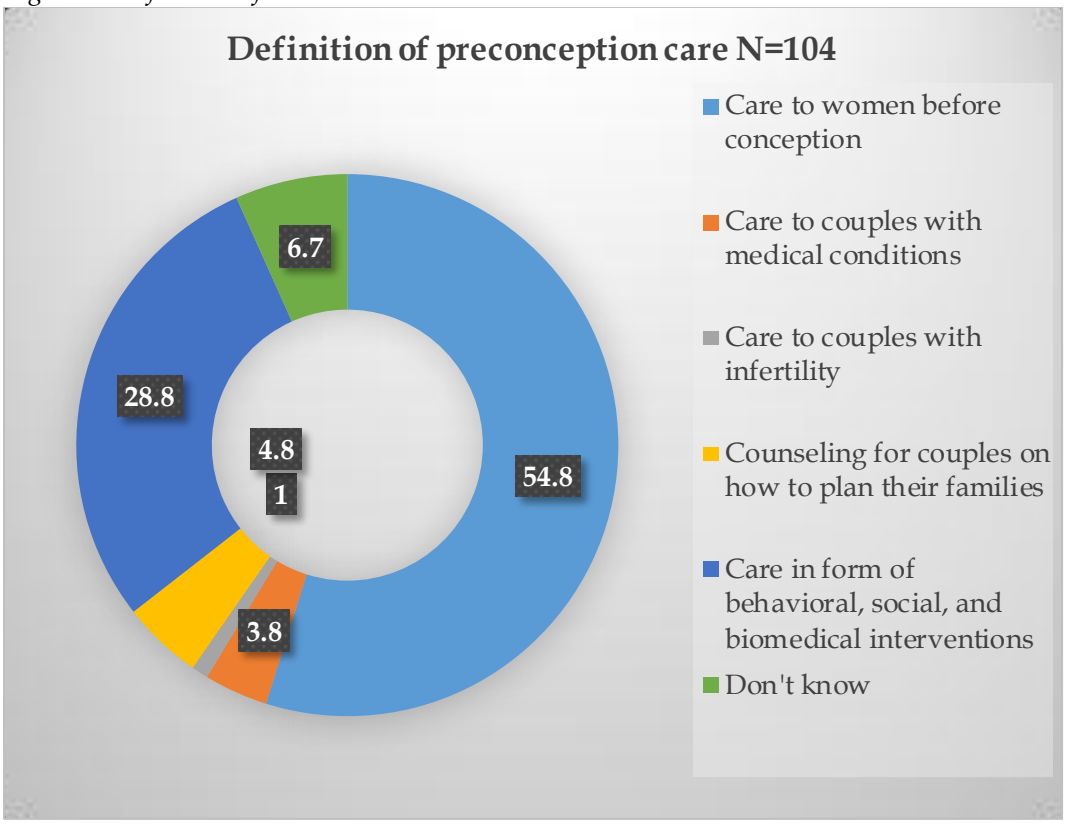


Table 2. Importance of preconception care components (Cronbach's Alpha = 0.7011)

	Frequency (%) N = 104			
	Not important	Somehow	Important	Very important
Screening for nutritional deficiencies	0 (0.0)	0 (0.0)	12 (12)	91 (88)
Identification of genetic risk factors to pregnancy outcome and related counseling	1 (1.0)	4 (5)	10 (10)	88 (85)
Provision of information on environmental hazards and their prevention	0 (0.0)	6 (6)	34 (33)	62 (61)
Creation of understanding on fertility and infertility	0 (0.0)	8 (8)	30 (29)	65 (63)
Health promotion on sexual reproductive health and gender rights	2 (1.9)	18 (18)	30 (29)	53 (52)
Provision of age-appropriate information on conception	3 (2.9)	3 (3)	35 (34)	62 (60)
HIV Prevention and Control	0 (0.0)	0 (0.0)	9 (9)	94 (91)
Mental health assessment and promotion	2 (2)	10 (10)	29 (28)	62 (60)
Assessment for and support against psychoactive substance abuse	2 (2)	10 (10)	15 (15)	76 (74)
Advocacy for relevant preconception vaccination	2 (2)	7 (7)	20 (20)	73 (72)
Provision of advice on tobacco use cessation	1 (1)	2 (2)	16 (16)	83 (81)
Discussion on/and discouragement of female genital mutilation	6 (6)	5 (5)	15 (15.)	76 (75)

An independent T-test was carried out to compare the Means for sub-specialization and the knowledge of components of PCC and the findings were that Levene's Test for Equality of Variances = 0.07 > P -value = 0.05 therefore, the significance level is 0.07 which is greater than 0.05 hence sub-specialization does not influence the knowledge of PCC components (Confidence Interval of 95%).

Training on preconception care

Preconception care was covered in the previous training by 67.3% of the respondents. Only 25.0% had in-service/refresher training on preconception care after their previous training. However, preconception care was/is to be covered in the current training of 73.8% of the respondents. The gaps in training on PCC in both basic and in-service trainings necessitate including PCC in training curricula for nursing and midwifery students.

There was no significant association between the participants' sub-specialization as either nurses or midwives and their knowledge of the components of PCC, with a likelihood ratio of 0.6 exceeding the 0.05 level of significance.

Delivery of Preconception Care Services

Preconception Care Service Provision

The majority (67.3%, N = 104) were aware of health service providers giving preconception care in their workstations. Both consumers and providers were expected to initiate most of these talks (66.0%), but only 45.2% of facilities had written guidelines regarding preconception care. 26.0% did not have such guidelines. 28.8% were unaware of whether the organisations they worked for had guidelines for preconception care.

Cadre of PCC providers

The respondents' views about cadres who should provide preconception care mostly included gynaecologists (88.6%), nurses (78.6%), and midwives (72.9%). Family physicians were recommended by 27.1%, General Practitioners and community health workers by 22.9% each, and other health workers were recommended by 1.4% of respondents as PCC providers.

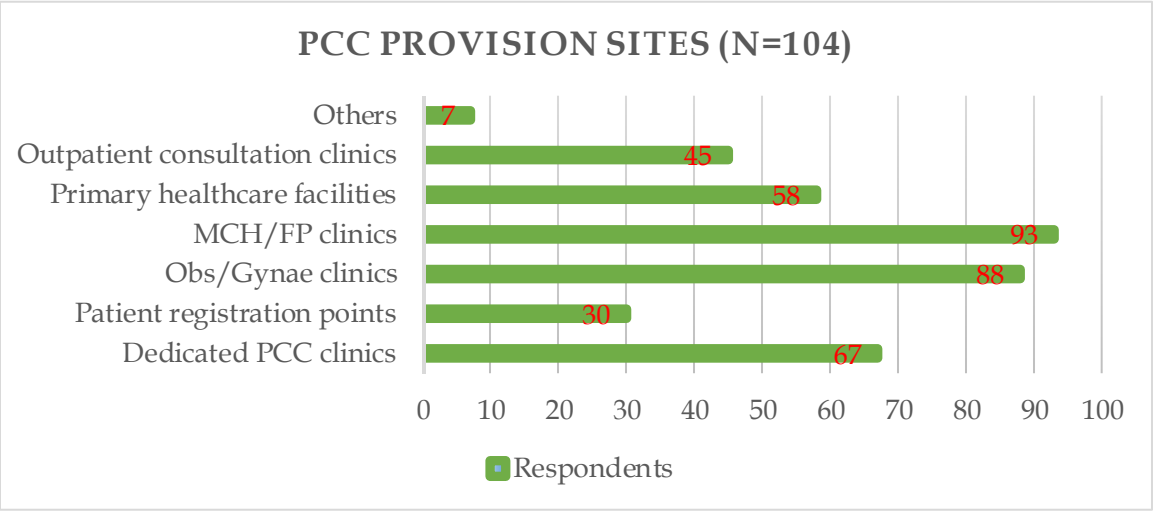
PCC service provision in six months

In the last six months (between August 2022 and January 2023), 45.2% had not provided preconception care in their workstations. 36.5% had provided preconception care 1-3 times, 7.7% had provided 4 -6 times while 10.6% had provided PCC more than seven times.

There was no significant association between the place of work and the number of times a nurse or midwife offered PCC services (Asymp. Sig. (2-sided): Pearson Chi-Square = 0.760, Likelihood Ratio = 0.715, and significance level = 0.05)

Preferred PCC Service Delivery Points (SDPs

Figure 2: Preferred PCC Service Delivery Points (SDPs)



Discussion

Knowledge of Preconception Care:

The study revealed a diverse participant group, with 76.7% females and 23.3% males, predominantly consisting of nurses (69.9%) compared to midwives (30.1%). Most respondents had undergone training as nurses or midwives six to ten years ago, with a mean age since their last training of approximately 12.28 years. Despite variations in training backgrounds, many respondents clearly understood Preconception Care (PCC). Among the 104 participants, 63.4% exhibited a general knowledge of PCC, while 36.6% lacked knowledge. The study shows that the knowledge of PCC components is similar among nurses and midwives. This suggests that there is potential for collaboration between these two groups in delivering comprehensive PCC services, emphasising the importance of teamwork in healthcare. The recognition of gynaecologists, nurses, and midwives as responsible cadres for providing PCC aligns with the holistic nature of PCC. A multi-disciplinary approach involving these professionals can enhance the quality of care.

Interestingly, over half of the participants defined PCC as care provided to women before conception, aligning with the primary concept of PCC. Additionally, many recognised PCC as a broader approach involving couples, behavioural, social, and biomedical interventions. However, only 28.8% knew the comprehensive definition of PCC, encompassing a range of biomedical, behavioural, and social interventions to improve pregnancy outcomes. A study by Akinjo et al. (2019) underscores the importance of accurately understanding PCC as a set of preventive measures targeting biomedical conditions, social factors, and risky behaviours impacting a healthy pregnancy.

Respondents acknowledged the significance of various PCC components, including screening for nutritional deficiencies, genetic risk assessment, environmental hazard prevention, fertility and infertility education, and HIV prevention. These findings highlight the comprehensive nature of PCC, addressing physical, psychological, and social aspects of preconception health. Notably, sub-specialization (nurse or midwife) did not significantly influence PCC knowledge, indicating similar understanding levels among both groups and emphasising potential collaboration between nurses and midwives in delivering comprehensive PCC services.

While a substantial portion of respondents had received PCC training during their previous education (67.3%), a significant number (75%) had not undergone in-service or refresher training on PCC. Recognising the critical role of in-service training in refreshing knowledge and skills, the majority (73.8%) indicated that PCC was to be covered in their current training. This underscores the importance of integrating PCC education into nursing and midwifery curricula to ensure a well-informed healthcare workforce with a specific focus on sexual and reproductive health competencies (Kizirian et al., 2019; McLemore & Levi, 2017)

Modalities of PCC Provision

The study findings reveal a relatively high awareness (67.3%) among healthcare providers regarding Preconception Care (PCC) availability at various workstations. The study also highlights the recognised cadres responsible for providing PCC, with gynaecologists, nurses, and midwives being the most acknowledged groups. This multi-disciplinary approach aligns with the holistic nature of PCC, emphasising the importance of a coordinated healthcare team in delivering comprehensive PCC services (Poels et al., 2017).

However, it is notable that 45.2% of respondents had not provided PCC at their workstations in the past six months, and 36.5% provided it only 1-3 times in the same period. This suggests potential

room for improvement in the frequency of PCC provision, influenced by factors such as workload and training.

The availability of guidelines on PCC is crucial for standardising services and reminding healthcare workers of the importance of PCC. Surprisingly, 54.8% of respondents did not have such guidelines in their facilities, indicating a potential gap in the standardisation of PCC practices. Policy gaps and a lack of clear guidelines can contribute to the underutilisation of PCC services (Ukoha & Mtshali, 2022). The absence of guidelines in some facilities highlights an area for improvement, as guidelines can serve as valuable tools for healthcare providers to deliver consistent and evidence-based PCC.

According to the respondents, Maternal and Child Health and Family Planning (MCH&FP) clinics were considered the best Preconception Care Service Delivery Points (PCC SDPs) by 89.4% of participants. Additionally, the Obstetrics and Gynecology Clinic was proposed as a PCC SDP by 84.6% of the respondents. The commitment of a clinic to dedicated PCC services, as suggested by 64.4% of the participants, was found to be underutilised in Ethiopia due to women's poor pregnancy planning behaviours and healthcare professionals' subpar screening and referral procedures in Primary Health Care (PHC) clinics (Seman et al., 2019). The respondents' willingness to utilise any opportunity to discuss PCC with women of childbearing age is a positive sign for increasing PCC awareness and utilisation. This approach aligns with the idea that every encounter with a woman can be an opportunity to provide PCC services effectively.

Conclusion

In conclusion, Preconception Care (PCC) knowledge among nurses and midwives remains insufficient, necessitating targeted training efforts to bridge existing gaps. The delivery of PCC services should involve diverse healthcare professionals and be accessible at various service delivery points within healthcare settings. Establishing clear guidelines is paramount to standardising PCC practices and reinforcing the significance of these services among healthcare workers, mitigating inconsistencies in their delivery. Addressing these deficiencies is critical for optimising PCC services and enhancing maternal and child health outcomes.

Despite variations in training backgrounds, healthcare providers exhibit a commendable understanding of PCC and acknowledge its crucial role in promoting preconception health. However, there is a need for enhancements in standardising PCC practices, expanding provision modalities, and overcoming barriers, particularly for practitioners already in the field. Integrating PCC education into nursing and midwifery curricula, coupled with developing explicit guidelines for PCC delivery, can elevate the quality and accessibility of PCC services. This, in turn, can substantially improve maternal and child health outcomes.

References

Akinajo, O. R., Osanyin, G. E., & Okojie, O. E. (2019). Preconception care: Assessing the level of awareness, knowledge and practice amongst pregnant women in a tertiary facility. *Journal of Clinical Sciences, 16*(3), 87.

Bell, M. L., Whitehead, A. L., & Julious, S. A. (2018). Guidance for using pilot studies to inform the design of intervention trials with continuous outcomes. *Clin Epidemiol, 10*, 153-157. doi:10.2147/clep.S146397

Bhat, A. (2019). What is research–definition, methods, types & examples. In: QuestionPro. Retrieved from https://www. questionpro. com/blog/what-isresearch.

Bhatta, P., Upreti, K., & Kalikotay, B. (2021). Knowledge on preconception care among bachelor level nursing students of selected campuses in Bagmati province. *Journal of Chitwan Medical College, 11*(3), 58-62.

Bortolus, R., Oprandi, N. C., Rech Morassutti, F., Marchetto, L., Filippini, F., Tozzi, A. E., . . . Mastroiacovo, P. (2017). Why women do not ask for information on preconception health? A qualitative study. *BMC pregnancy and childbirth, 17*(1), 1-11.

Charan, J., & Biswas, T. (2013). How to calculate sample size for different study designs in medical research? *Indian J Psychol Med, 35*(2), 121-126. doi:10.4103/0253-7176.116232

Collins, L. A. (2016). *Knowledge, attitudes, and beliefs about preconception care among American adolescent females.* Walden University.

Denis, D. J. (2018). *SPSS data analysis for univariate, bivariate, and multivariate statistics*: John Wiley & Sons.

Denis, D. J. (2019). SPSS Data Analysis for Univariate, Bivariate and Multivariate Statistics. 213.

Goossens, J., De Roose, M., Van Hecke, A., Goemaes, R., Verhaeghe, S., & Beeckman, D. (2018). Barriers and facilitators to the provision of preconception care by healthcare providers: a systematic review. *International journal of nursing studies, 87*, 113-130.

Grigoryan, L., Cohrs, J. C., Boehnke, K., van de Vijver, F. A., & Easterbrook, M. J. (2022). Multiple categorization and intergroup bias: Examining the generalizability of three theories of intergroup relations. *Journal of Personality and Social Psychology, 122*(1), 34.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evid Based Nurs, 18*(3), 66-67. doi:10.1136/eb-2015-102129

Ikart, E. M. (2019). Survey questionnaire survey pretesting method: An evaluation of survey questionnaire via expert reviews technique. *Asian Journal of Social Science Studies, 4*(2), 1.

Kizirian, N. V., Black, K. I., Musgrave, L., Hespe, C., & Gordon, A. (2019). Understanding and provision of preconception care by general practitioners. *Australian and New Zealand Journal of Obstetrics and Gynaecology, 59*(6), 799-804.

Kothari. (2019). *Research Methodology: Methods and Techniques* (4 ed.). New Delhi, India: New Age International (P) Ltd, Publishers.

McLemore, M. R., & Levi, A. J. (2017). Expanding access to sexual and reproductive health services through nursing education. *Journal of Obstetric, Gynecologic & Neonatal Nursing, 46*(5), e149-e156.

Munthali-Nkhoma, M. E., Kazanga-Chiumia, I., Mandiwa, C., & Mwale, S. (2021). Knowledge and Perceptions of Preconception Care Among Health Workers and Women of Reproductive Age in Mzuzu City, Malawi. A Cross-sectional Study.

Nypaver, C., Arbour, M., & Niederegger, E. (2016). Preconception care: Improving the health of women and families. *Journal of midwifery & women's health, 61*(3), 356-364.

Okemo, Kamya, D., Mwaniki, A. M., & Temmerman, M. (2021). Determinants of Preconception care among Pregnant Women In an Urban and a Rural Health Facility In Kenya: A Qualitative Study.

Okemo, Temmerman, M., Mwaniki, M., & Kamya, D. (2020). Preconception Care among Pregnant Women in an Urban and a Rural Health Facility in Kenya: A Quantitative Study. *International journal of environmental research and public health, 17*(20), 7430.

Poels, M., Koster, M. P., Franx, A., & van Stel, H. F. (2017). Healthcare providers' views on the delivery of preconception care in a local community setting in the Netherlands. *BMC health services research, 17*, 1-10.

Pourhoseingholi, M. A., Vahedi, M., & Rahimzadeh, M. (2013). Sample size calculation in medical studies. *Gastroenterol Hepatol Bed Bench, 6*(1), 14-17.

Ratner, B. (2017). *Statistical and Machine-Learning Data Mining: Techniques for Better Predictive Modeling and Analysis of Big Data* (3rd ed.). 6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL 33487-274: CRC Press, Taylor & Francis Group.

Seman, W. A., Teklu, S., & Tesfaye, K. (2019). Assessment of the knowledge, attitude and practice of residents at Tikur Anbesa Hospital about preconceptional care 2018. *Ethiopian Journal of Reproductive Health, 11*(1), 10-10.

Sürücü, L., & MASLAKÇI, A. (2020). Validity and reliability in quantitative research. *Business & Management Studies: An International Journal, 8*(3), 2694-2726.

Tekalign, T., Lemma, T., Silesh, M., Lake, E. A., Teshome, M., Yitna, T., & Awoke, N. (2021). Mothers' utilization and associated factors of preconception care in Africa, a systematic review and meta-analysis. *PloS one, 16*(7), e0254935.

Ukoha, W. C., & Mtshali, N. G. (2022). *"We Are Having a Huge Problem with Compliance": Exploring Preconception Care Utilization in South Africa*. Paper presented at the Healthcare.

van Voorst, S. F. (2017). Preconception care: from policy to practice and back. Erasmus University Rotterdam, 14-06.

van Voorst, S., Plasschaert, S., de Jong-Potjer, L., Steegers, E., & Denktaş, S. (2016). Current practice of preconception care by primary caregivers in the Netherlands. *The European Journal of Contraception & Reproductive Health Care, 21*(3), 251-258.

Waller, M. J. P. D. S. (2021). *Quantitative Data Analysis1 In: Designing and Managing a Research Project: A Business Student's Guide*. Thousand Oaks City SAGE Publications, Inc Yuko Wliilis Oso, D. O. (2016). *A General Guide to Writing Research Proposal and Report* (Revised Edition ed.). Nairobi: The Jomo Kenyatta Foundation.