Original Article

Integrating Preconception Health into Routine Reproductive Health Services of Ghana: A Qualitative Study Among University Students

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Abstract

Objective: The preconception health (PCH) strategy provides a unique opportunity to reduce risk factors for adverse reproductive outcomes before pregnancy. However, many reproductive-aged individuals continue to miss opportunities to improve their health before pregnancy occurs. This study, qualitatively explored strategies required for integrating PCH promotion interventions into routine reproductive health services from university students' perspectives.

Materials and methods: We conducted eight mixed-gender focus group discussions (FGDs) with students in eight schools and faculties in the University from March 2019 to June 2019. Audio-taped data were transcribed verbatim and analyzed manually using inductive content analysis.

Results: Three major themes emerged from the analysis of transcripts: interpersonal behavior change strategies, institutional policy directives, public policy interventions, and three main categories with eight sub-categories. The study showed that PCH promotion awareness campaigns, context-relevant service delivery initiatives, institutional and public policy directives are critical approaches for the delivery and uptake of PCH interventions. Participants also recommended prepayment schemes, walk-in services, mobile PCH clinics, and PCH incorporation into university curricula as context-specific strategies for PCH promotion among university students.

Conclusion: PCH promotion could be feasible as an integral component of routine reproductive health services for university students. However, multi-level interventions at the student, health service, and institutional levels are necessary to increase awareness and facilitate the request and delivery of PCH services.

Keywords: Reproductive Health; Reproductive Health Services; Ghana; Qualitative Research

Introduction

Preconception health (PCH) is the health of individuals during their reproductive years before pregnancy (1). It targets risk reduction, promoting healthy behaviors, and increasing pregnancy preparedness regardless of gender, sexual orientation, and whether individuals plan to have children or not (2). PCH implies that people can safeguard fertility and reduce risk factors associated with poor reproductive outcomes before conception (3, 4). PCH

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strategy completes the maternal and child (MCH) continuum by ensuring ongoing surveillance and guarantees that all pregnancies are planned and wanted (5). Preconception care (PCC) includes risk assessment, health promotion, counseling, and the delivery of interventions. These can be categorized into two broad component actions: the provision of information and behavior change (6). The PCH initiative provides a platform for early detection and management of health risks and ensures that reproductive-aged individuals begin pregnancy in a state of optimal health (1, 2, 5, 6).

PCH promotion is a preventable strategy towards ending a substantial proportion of MCH morbidity and mortality (7, 8). Thus, increasing global interest in the PCH and health care initiative. The importance of the prevention paradigm is underscored by the recognition that many adverse reproductive outcomes are associated with preventable pre-pregnancy risk factors (9, 1). Evidence suggests that pre-pregnancy health status, lifestyle, and behaviors are critical determinants of fertility and pregnancy outcomes (10-13). Given the potential benefits of reducing risk factors associated with poor MCH outcomes (11, 14, 15), international organizations such as the Center for Disease Control and Prevention (CDC) and World Health Organization (WHO), have recommended the PCH and PCC initiative for all men and women of reproductive age (9, 1). The inclusion of men is critical because they contribute 50% to a child's genetic material (3). Also, the participation of men improves their reproductive health status and ensures they assume full responsibility as partners and advocates for reproductive health (7).

Experts have identified three main mechanisms for PCH service delivery (16). These comprise strategic interventions at the individual, institutional, and community levels to make PCH promotion a priority in preventive healthcare and healthcare financing. Studies have also stressed the role of the healthcare professional in PCH awareness creation and accessibility (17-19). For instance, in a systematic review of women's attitudes and the experiences of the different cadre of health professionals towards PCH care, Steel et al. underscored the need for information on the PCH concept, personal contacts with health professionals, and allocation of specific times for PCH counseling (19). Mitchell and Verbiest reported consumer education, clinical care, advocacy and policy, research, and public health and community interventions as appropriate PCH delivery strategies (20). Research also shows that PCH interventions can be successfully delivered to reproductive-aged individuals in academic institutions (17, 21-23).

Several high-income countries (HIC) such as Italy, Netherland, and the United States, and low- and middle-Income countries (LMICs) like Bangladesh, the Philippines, and Sri Lanka have successfully initiated the PCH strategy (15). However, PCH interventions are not routinely practiced in several countries in Sub-Saharan Africa (SSA) (24, 25), including Ghana. Additionally, there is insufficient evidence to guide the comprehensive implementation of routine PCH interventions (26, 27). PCH promotion in Ghana becomes critical for several reasons. First, the country has repetitively experienced high MCH morbidity and mortality (28). Research suggests that pregnancy-related deaths represent 12.1% of the 5247 deaths occurring among women of reproductive age in Ghana (29). Second, Ghana has one of the highest maternal mortality rates in SSA, even though the country's antenatal care services are rated among the best in the sub-region (30). Third, despite reducing maternal deaths, the country failed to achieve the 2015 Maternal Mortality Ratio (MMR) target of 54 per 100,000 live births (28).

Under-five mortality rates also fell short of the 2015 global target. It remained high at 60 per 1,000 live births instead of 40 per 1,000 live births. Ghana's national safe motherhood service protocol identifies PCC as a component of community and facility information, education, and communication topic for young people (31). However, PCC services are not routinely provided as part of existing reproductive health services.

The PCH gap in the continuum of MCH services has resulted in a situation where reproductive-aged men and women continue to miss opportunities to improve their health status before pregnancy (32, 3).

University students are particularly predisposed to several lifestyles and environmental risk factors that increase the risk of adverse reproductive outcomes (33, 34). For instance, though most are sexually active (35), they delay pregnancy due to their academic pursuits (36). They are also susceptible to sexual risk behaviors associated with adverse outcomes (33, 34), such as unsafe sex, unintended pregnancies, unsafe abortions, and other risk factors (3). The CDC launched the PCH and healthcare initiative as far back as 2004. One of its recommendations for improving PCH was to

integrate components of PCH into existing public health and related programs (9). However, research rarely addresses university students' perceptions on how to bridge the PCH gap in routine reproductive health services. Our study qualitatively explored university students' views to understand how PCH promotion interventions can be packaged and delivered to university students.

Materials and methods

This qualitative study used the inductive content analysis approach. Inductive qualitative approaches provide orderly methods for transforming huge qualitative data into well-structured and exact synopsis of significant findings (37). The study was conducted among undergraduate and postgraduate students of a public university in Ghana. University students were deemed appropriate for this study because aside from constituting a crucial stage for exploration, university years represent a unique time for decision-making about sexuality, lifestyle modifications, and adoption of permanent health behavior (38). The University has a hospital that provides health services to students, staff, and the general public. The study setting has diverse students expected to have different opinions about the phenomenon being investigated. In this study, we explored the views of reproductive-aged university students about how PCH interventions should be packed and delivered to students at a university hospital between March and June 2019. A total of 55 students who met the inclusion criteria (female and regular male students between the ages of 15 and 49 years) were recruited for his study. Participants were selected using maximum variation in age, gender, level of university education, and program of study.

Data collection was conducted using mixed-gender focus group discussions (FGDs) and semi-structured interviews. Interview guides were self-developed based on evidence from previous studies (6, 20, 22). The interview guide explored four major questions related to how to integrate PCH into routine reproductive health services. The content validity of the instrument was assessed by two experts in qualitative research and pre-testing. Feedback related to the wording, quality of questions, and probes was used to revise the final interview guide before the main data collection. FGDs were conducted in English at different locations from March to June 2019 and lasted between 30 to 60 minutes.

The data collection date, time, and location were scheduled according to participants' preferences to reduce non-response. FGDs were carried out using open-ended questions with mixed-gender groups of six to ten participants until data saturation was reached. This was when adding more participants to the study does not add additional perspectives or information. Interviews were audiotaped and transcribed verbatim into audio files and entered into a computer.

Data analysis was done manually using the hands-on guide for conducting a content analysis suggested by Erlingsson and Brysiewicz (37). The first author and co-authors read transcripts several times independently to build a strong familiarity with the data. The coders independently coded each transcript line by line using a coding scheme to increase rigor (39). Subsequently, texts were broken down into smaller components called meaning units and further reduced into condensed meaning units. Specific labels known as codes were given to explicit descriptions of condensed meaning units. This was performed by highlighting and labeling relevant words, phrases, sentences, or sections of the transcripts.

The codes were later grouped into different categories to depict diverse aspects of the data. Similar and essential codes were brought together as categories. In the final stage, sub-categories were arranged into larger (main) categories to identify critical issues and underlying meanings or themes within the data. A theme was "an overall concept of an underlying meaning on a latent interpretative level". Data collection and analysis were done concurrently, followed by the regular comparison of generated codes. The first author and co-authors separately did researcher triangulation (coding, analysis, and interpretation of results) (40), followed by regular discussions on similarities, variations, and agreement on emergent themes.

Data categorization and theme development were guided by Vaismoradi et al. (41). Categories and the interrelationship among different emergent categories represented the major findings of the study. The study results were presented according to literal and underlying (latent) meanings derived from the analysis (42). Transcribed interviews were organized according to meaning units, codes, categories, and major themes (37). Finally, quotes representing typical views and significant participant statements were extracted from the transcripts and presented to illustrate the identified themes.

Lincoln and Guba's criteria for trustworthiness were employed to ensure the rigor of the qualitative

study (43). These comprised four steps; namely credibility, transferability, dependability, and confirmability. Regarding potential biases, the first author employed reflexivity, an iterative and self-reflection process, and how this influenced the relationship with study participants and their responses to questions posed to them.

The study received ethical approval from the Ethical Review Board of the University (UCCRIB/CHAS/2018/86). Permission was obtained from the Deans and Heads of Departments of Schools/Faculties and departments involved in the study. The purpose, benefits, and possible risks of the study were explained before data collection. Participants were required to sign a written informed consent form to assure their rights before engaging in the study. Participants reserved the right to withdraw from the study at any time. Only pseudonyms were used throughout the study to protect the identity of study participants.

Results

A total of eight mixed-gender FGDs were conducted involving 55 undergraduate and postgraduate students engaged from four colleges. Age of participants ranged from 18 to 40 years (Mean [M] = 24.3, Standard Deviation [SD] = 6.0) made up of 54.5% (number [n] =30) males and 45.5% (n=25) females. A significant number of 83.0% (n=45.7) were single, 15.1% (n=8.3) were married, only 1 (n=1.9) participants was divorced. A large proportion 87.3% (n=48) were Christians, and the rest 12.7 (n=7) were Muslims. Four students were unable to participate in the focus group discussions because of time constraints. Table 1 illustrates the socio-demographic characteristics of students' samples for the FGDs.

Three major themes related to awareness creation and education, contextual interventions, and broader societal interventions required to integrate PCH into existing routine reproductive health services emerged from that data. These include "interpersonal behavior change strategies," "institutional policy directives," and "public policy interventions," with three main categories and eight sub-categories.

Awareness Creation and Education

Awareness creation: All participants stressed the need for PCH awareness creation among students. Participants identified specific strategies like PCH alerts on mobile devices, social media, and mass communication. PCH souvenirs and week celebrations are critical to PCH awareness creation among students. This finding is evident in the quotes below:

"They should make a loud noise about it. They should send messages across using mass media and social media platforms. They can also use the shuttle to make an announcement or play audios on PCH" (Female, 22 years, FGD 4). "*I also think awareness creation through mass media is very important"* (Female, 21 years, FGD 6).

Table 1: Socio-Demographic characteristic of participants involved in FGDs (n=55)

Characteristics	Frequency (%)	Percentage (%)
Age (years)		
18-21	21	38.2
22-25	23	41.8
26-29	1	1.8
30-33	3	5.5
34-37	3	5.5
38-41	4	7.3
Gender		
Male	30	54.5
Female	25	45.5
Level of University Education		
100	13	23.6
200	12	21.8
300	10	18.2
400	10	18.2
800	6	10.9
900	4	7.3
Marital Status		
Single	45.7	83.0
Marriage	8.3	15.1
Divorced	1	1.9
Religion		
Christian	48	87.3
Muslim	7	12.7
Name of College		
College of Educational Studies	16	29.1
Humanities and Legal Studies	11	20.0
College of Health and Allied Sciences	16	29.1
College of Agric and Natural Sciences	12	21.8

PCH Information dissemination: According to students, comprehensive education on the PCH concept will ensure behavior change and decision-making towards PCH interventions. Participants

believed that disseminating relevant information and risk behavior s associated with adverse reproductive outcomes is required during the early years of university education. This is illustrated by the excerpts below:

"We need more education on PCH because if you're not aware of the risk factors, you can't do anything" (Male, 24 years, FGD 4). *"They can bring resource persons to talk to us about some of these things right from scratch, so you have an idea about these things and the risk of getting involved, so you know what decision to take"* (Male 26 years, FGD 1). *"I think education will help. I didn't know anything about this until today; so, they should educate students to know what it entails*" (Female,19 years, FGD 3).

PCH Advocacy: Some students believed that advocacy should be done using celebrities and peers for PCH sensitization and education. According to them, peer advocacy and images of celebrities will generate interest in PCH-related issues among students. The following narratives buttress this finding:

"*I think celebrities and students should be made advocates so that they can help in educating other students through wearing of T-shirts"* (Female, 24 years, FGD 6). "…*Most of the people involved in the education should be people in our age groups because we relate better with our peers than people who are older than us*" (Male, 23 years, FGD 3).

Institutional Support

Participants thought that health care system strategies and university-wide PCH promotion interventions are necessary to advance students' interest and demand for PCH interventions. Specific strategies identified include health service re-orientation, PCH integration into curricula, and pre-service payment schemes.

Health Service Changes: Participants identified student-friendly services such as PCH days, walk-in/lunch break services, and special clinics/desks for PCH at the health facility. Participants also proposed mobile van PCH services and counseling at students' residential halls. The following narratives illustrate this:

"*There should be a day set aside or a week set aside for such services. As students, we mostly focus on lectures, so if a day is set aside for such services so that it will be easily accessible*" (Male, 22 years, FGD 2). "…*They should also make the hospital accessible so that during lunchtime you can pass by for such services*".

University-wide PCH Promotion Strategies: Participants recommended PCH integration into the university curricula as a course of study. The narratives indicate that students should take the proposed course in the first year of university education. They also stressed the need for PCH sensitization during orientation of all fresh students and PCH screening as an aspect of the mandatory medical screening required by all fresh students admitted into the University. The excerpts also show that students preferred pre-paid arrangements to pay for PCH interventions at the point of service delivery. Participants highlighted these as follows:

"PCH should be introduced in level 100, so it can be a course of study. It can be a liberal course like HIV, Communication skills or African studies" (Male, 23 years, FGD 6).

"… *Maybe when we come afresh, PCH could be added to the tests that we do before lectures start*" (Male, 22 years, FGD 2). "…*It should be part of our orientation in level 100. It will psych our minds* (Male, 23 years, FGD 6).

"… If the school makes PCH services free, students will be willing to go for such services. We pay school fees, so it should be part of our fees so the university can later re-reimburse the hospital" (Male, 24 years, FGD 5).

Public Policy Interventions

The findings underscored the importance of broader societal interventions to facilitate uptake and the provision of PCH services. According to the narratives macro-environment, a supportive PCH strategy using public awareness campaigns, societal re-orientation, and PCH policy will enhance PCH acceptance and behavioral change.

Supportive Macro-environment: Creating an enabling environment within the larger social context emerged as key to PCH behavioral change and integration into routine health services. Overall, the findings suggest that the policy and societal contexts of behavior must not be ignored in PCH promotion efforts.

Public Awareness Campaigns: Participants stressed the need for sensitization and education on the PCH concept and its benefits to MCH outcomes among the general public. The main strategy proposed was weekly PCH education in all government health facilities throughout the country.

"First of all, awareness creation is necessary especially in our part of the world…we have to create that awareness" (Male, 31 years, FGD 1).

"...We have government hospitals in every region, so they should take every week to educate people on

the effect of these things" (Male, 22 years, FGD 4).

Societal re-orientation: Most students expressed the need to re-orient societal value systems to promote pregnancy preparedness culture within the larger social context. Participants identified preventive health promotion culture and voluntary counseling among individuals of reproductive age. The findings also drew attention to the need to demystify to encourage uptake of PCH interventions among young adults. The quote below illustrates the above findings:

"First of all, awareness creation, especially in our part of the world, where talking about sex becomes a major problem and the extent. To the extent that they will think that you are not well cultured" (Male, 31 years, FGD 1).

"I'm also thinking of adding voluntary counseling for young adults who are sexually active" (Male, 40 years, FGD 1).

PCH Policy: Findings further underlined enactment of legal and policy frameworks to remove financial barriers to accessing PCH interventions. They stated that health insurance coverage could be a key strategy to avoid the challenge out-of-pocket payment for PCC. For instance, a 20-year-old female student stated this in the quote below:

"*... They should incorporate preconception into NHIS"* (Female, 24 years, FGD 6).

Discussion

Our study aimed to capture participants' opinions about how PCH promotion interventions can be packed and delivered to university students as a component of routine reproductive health services. The findings indicate three major factors operating at the interpersonal, institutional, and public policy levels are critical to PCH promotion efforts for university students. Participants identified awareness creation, education, and advocacy on the PCH concept among students as an important step for uptake of PCH services. They suggested that education on PCH should begin early during the first year of university education to improve PCH knowledge, decision-making, and uptake of services. Mass media, social media platforms, alerts on mobile devices, and PCH week celebrations were also identified as potential channels for awareness creation during PCH promotion efforts. The results are supported by Hemsing Greaves and Poole (44) and Squires et al. (45) that health education and social marketing strategies are the most effective strategies for improving PCH knowledge and health behaviors.

The findings align with earlier studies that the social marketing strategy is suitable for health promotion interventions for diverse target groups in different settings (45, 46). The findings agree with theoretical propositions that new preventive behaviors cannot occur when people are unaware of the behavior in question (27, 28).

Institutional policy directives on PCH also emerged as a crucial strategy to integrating PCH promotion initiatives into routine health services for university students. Participants recommended facility-based interventions such as student-friendly services, walk-in/lunch breaks services, PCH clinics/desks, PCH days could be employed to improve accessibility to PCH services. Mobile clinics and PCH counseling services at halls of residents were perceived as strategies that may improve access to PCH services. The results support previous findings that PCH interventions can be delivered in clinical and community-based settings using primary health care approaches (44, 46). Results align with the Socio-ecological Model (SEM) propositions that context cannot be ignored in designing successful health promotion programs. The study highlights the need to develop a PCH strategic plan and protocols by the University hospital to guide PCH interventions among students as part of university health services.

Another idea that emerged in the present study was the need to roll out university-wide PCH promotion strategies to improve students' awareness, accessibility, and demand for PCH services. These could be implemented by integrating PCH into the university curricula, sensitizing students during orientation of fresh students, and screening for all fresh students. Participants perceived affordability to the uptake of PCH services among students. They recommended the implementation of pre-service payment options to remove barriers to the affordability of PCH services. The findings are consistent with previous studies that PCH promotion interventions can be delivered in educational settings to prepare them for parenthood before pregnancy (46-51). The results highlight the need for curricula reviews by the university management to include content on PCH promotion and institutional prepayment policy options to avert financial barriers to accessing PCH services among students.

Broadening the National Health Insurance Scheme (NHIS) to include PCH services emerged as another PCH financing strategy. Participants believed that

this strategy would remove barriers associated with the out-of-pocket payment for health services. Similar findings were reported by Lassi et al. (46) and Young et al. (50) in their reviews of opportunities for delivery and packaging PCH interventions for reproductive-aged individuals. The findings are consistent with evidence that policy and finance are the most critical barriers to access and health system changes (52). Experts strongly recommended national health insurance coverage, waivers, and policy directives since out-of-pocket payments are potential barriers to requesting PCH services. Findings correlate with the position of advocates of the SEM that integration at personal, interpersonal, and social-environmental levels may influence efforts to change health behavior (53). Individuals are embedded within the larger social systems (54); therefore, changes in societal attitudes and norms related to PCH are crucial during the design and implementation of the PCH promotion agenda.

Public awareness campaigns, societal re-orientation, and a national policy on PCH were identified as critical strategies for integration and behavioral change among university students. According to the narratives, public sensitization and education will facilitate PCH promotion as a preventive health strategy. Participants emphasized that societal re-orientation, spousal support, male involvement, and voluntary PCH counseling among sexually active young adults are necessary to eliminate apathy towards the culture of pregnancy preparedness. Participants felt that implementing these measures will advance the PCH promotion agenda and the preventive health culture. The findings may be explained by participants' perceptions of the prevailing culture, values, and attitudes towards engagement in reproductive health services by young and unmarried people. Another plausible explanation may be the fear of being stigmatized in the absence of a national sensitization and acceptance of the PCH concept.

The results were directly in line with findings of a past study that multifaceted interventions are required to position PCH at the forefront of funding and provision of preventive health services (17). The results also tie well with Tuomainen et al. (54) findings that lack of a prevailing culture of pregnancy preparedness is a significant barrier to the uptake of PCH services. The results fit into propositions of the SEM that subjective norms, perceptions about economic and environmental factors affect health behavior (52). The current study's findings highlight the importance of considering several factors operating at the interpersonal, institutional, and public policy levels to ensure behavior change in PCH promotion initiatives.

The study explored students' opinions of only one public University and may not represent all university students in Ghana. Also, the contributions of participants in FGDs as a qualitative data collection method may be disproportionate. Despite these limitations, our study reflects participants' perspectives on context-specific strategies required to address the PCH gap in the study area. The results also have significant implications for the country's PCH promotion agenda, research, and policy.

Conclusion

This study explored university students' perceptions regarding how PCH interventions should be packed and delivered to students in their reproductive years. The results underscored the need for sensitization on the PCH strategy to facilitate demand and uptake of PCH services among university students. The results also indicate that multi-level interventions targeted at all relevant stakeholders, including students, healthcare professionals, university management, and policymakers, are required to design and implement PCH promotion efforts. The current study should be replicated among reproductive-aged individuals in the general population to deepen understanding of how components of PCH can be integrated into existing reproductive services.

Conflict of Interests

Authors have no conflict of interests.

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