

Teaching Nursing Students to Teach Patients Using Human Centered Design (HCD) Approach: A Case Study With Adolescent Mothers

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Abstract

Background: Empowering nurses with a skill to understand problems from a person centered perspective is essential in addressing complex health challenges. HCD is a creative approach to problem-solving that focuses on understanding the needs and experiences of the people who will use a product or service. HCD can be seen as a tool and process for achieving the higher stages of patient engagement.

Method: This case study, showed how nursing students were able to use Human Centered Design approach, after the introduction of HCD, into a community health project. The students integrated the five phases of HCD: Empathize, Define, Ideate: Prototype, Test to identify and co-build strategy with adolescent mothers to educate on life skills of interest.

Result and Conclusion: Adolescent mothers need educational support on stress management, breast feeding and time management to enable them to successfully navigate motherhood demand.

Keywords: teach, nursing students, HCD, adolescent mothers, life skills

1. Introduction

Despite, theories, frameworks and models to improve patient education, there still remains dissatisfaction from patients with patient education (Candela et al. 2018). Quality patient care, includes patient education. A proper patient education improves care outcomes, intervention adherence and reduces the cost of care (Wakefield et al. 2021). Poor patient education can lead to a multitude of negative consequences, such as medication errors, poor medication and behavioral adherences, increased hospital readmissions, longer hospital stays, and even death. Also, poor health outcomes, higher healthcare costs, and health disparities have been linked to poor patient education (Adams 2010). Healthcare providers are responsible for providing health education to their patients. This can be done at any point in patient encounter such as during hospital visits, clinic visits, community services, while in the hospital and at discharge (Candela et al. 2018). Hospital-based nurses play a key role in patient/family discharge teaching as they transition from hospital to home (Candela et al. 2018).

Nurses educate patients and the community about health management through empowering individuals to take charge of their health, understand their medical conditions, and navigate the healthcare system effectively. By providing tailored education, nurses can foster better health outcomes and support patients in making informed decisions about their care. Nurses, also educate patients about their health conditions, recovery, discharge instructions, medication, rehab, health promotion issues and disease education. Nurses, educate the community on multitude of health issues and health promotion. However, Nurses approach in patient education involve a one-way communication such as telling the patient what to do after discharge and providing those instructions in a written form or an instructional video or for patients to return skill demonstration. Unidirectional method of

teaching is not effective for patient education, as evidenced by readmission, reports of confusion and no memory of discharge teaching (Candela et al. 2018). Barriers to quality nursing patient education, include nurses are not comfortable or proficient in all areas of patient teaching, lack of knowledge regarding how people learn, lack of time, and lack of undisturbed settings (Candela et al. 2018; Albert et al. 2015; Bergh et al. 2012). To improve nurses' skill in patient teaching would require a framework that would integrate patients in their care, educate and co-create intervention that is feasible and acceptable to patients. Building a skill in patient education should start from pre-licensure (Candela et al. 2018). Nursing students pre-licensure curricula should include core competence in patient teaching, content knowledge and teaching process.

Person-centered care is person-directed, such that people are provided with sufficient information to help them in making decisions about their care and increase their level of engagement in care. Features of person-centered care include an emphasis on codesign of interventions, services, and policies that focus on what the person and community want and need; respect for the beliefs and values of people; promotion of antidiscriminatory care; and attention to such issues as race, ethnicity, gender, sexual identity, religion, age, socioeconomic status, and differing ability status (Santana et al. 2018). Also, person-centered care focuses not only on the individual but also on families and caregivers, as well as prevention and health promotion. Nurses who engage people in their care are less likely to make mistakes (Leiter and Laschinger, 2006; Prins et al., 2010; Shiparski, 2005). Person-centered care leads to better communication between patients and caregivers and improves quality of care, thereby increasing patient satisfaction, care adherence, and care outcomes (Hochman, 2017).

Human Centered Design, provides a structured framework for designing healthcare experiences, services and education that is person-centered, empower patients and move them beyond simply being informed, towards being active partners and co-creators in their care (Henriksen et al. 2020). By focusing on patient needs and involving them in the design process, HCD helps healthcare organizations overcome challenges like disjointed communication and lack of empathy, ultimately leading to improved patient engagement and health outcomes. HCD advocates for a patient-centered approach to patient teaching consisting of five phases: Empathize, Define, Ideate, Prototype, Test (Tu et al. 2018; Enwerem et al. 2024; Ingram et al. 2022)

This study is a continuation of our work with Expectant and parenting teens (Enwerem et al. 2024) where education on life skills was identified as a major need to finish high school.

The aim of this study is to provide guidance to pre-licensure nursing students in assessing, developing and refining patient teaching skills using HCD approach.

2. Method

2.1 Participants

- (a) Twenty (20) adolescent mothers were recruited through convenience sampling using District of Columbia Network of Expectant and Parenting Teens (DCNEXT!) network partners and snowballing. Institutional Review Approval through Howard University and informed consent was obtained from all participants before interview.
- (b) Senior Nursing students on community rotation at HUDCNEXT participated in this study.

2.2 Data Collection

In the academic year 2021/2022 and 2022/2023 we introduced a six-week graded Human centered design seminar organized in a 3 hour weekly teaching. The class was facilitated by the HUDCNEXT innovative team (PI and co-investigators) and three-weeks of team work leading to a graded assignment. The 3 hour teaching involved working on solving a challenge (Education on life skills for expectant and parenting teens) through the Stanford Human Centered design thinking framework (empathize, define, ideate, prototype, test (Ingram et al. 2022). A detailed outline of the skills acquired is described in Table 1. Once they have completed the lectures, students worked as a group for another 3 weeks on a design thinking assignment. The assignment consisted of pitching an innovative idea to solve Adolescent mother's need for education on life skills using the HCD approach. Due to time constraints, we did not ask students to prototype and test the idea. After the identification of a problem, each team needed to undertake the HCD steps (phases) by completing an empathy stage (also called inspiration) using diverse methods, literature review, observation, interviews, to produce a problem statement through a problem finding process, brainstorming many ideas, using thematic analysis to identify one idea and pitching it to the class.

Nursing students were invited to discuss their findings for each HCD phase and the instructor provided feedback ensuring that each team understood the steps required to complete the HCD challenge.

Team members chose the number of times they would meet to discuss their project and how they would meet.

The students were asked to use evidence based practice for providing education and to co-create the best way to deliver contents to adolescent mothers.

3. Results

Expectant and parenting teens showed interest for education on: (a) stress management, (b) time management and (c) breast feeding.

The students accomplished these teachings using evidence-based practices (CDC 2013; WHO 2010; American Indian Foundation (2018).

The nurses acquired some skills for each HCD phase (Table 1).

Table 1. Skills acquired from each HCD Phase

Human Centered Design	Define phases	Skills acquired
Empathize	Empathize: Understanding the user (in this case, the patient) through research, interview and observation.	<ul style="list-style-type: none"> • Active listening • Empathy interview • Interview • Observation • Seeking to understand end-users (Adolescent mothers' perspectives, needs, and preferences) • Speak with end-users (Adolescent mothers) ask them questions • Ask them questions about what are the top concerns they have regarding "Life skills."
Define	Clearly articulating the user's needs and challenges.	<ul style="list-style-type: none"> • Stratify data into meaningful information • Clearly identify themes from empathy stage and define the challenges on life skills that bothers Adolescent mothers from moving forward.
Ideate	Generating a wide range of potential solutions.	<ul style="list-style-type: none"> • Brainstorming for possible solutions • Generate as many ideas as possible to address the problems identified • Group ideas based on their similarities
Prototype	Creating tangible representations of the solutions.	<ul style="list-style-type: none"> • Consider the best way to deliver the intervention • Present the education in various forms. (power point presentation, video)
Test:	Evaluating the prototypes with users and gathering feedback.	<ul style="list-style-type: none"> • Testing interventions with end-users ensures that solutions are relevant, user-friendly, and effectively support the desired level of engagement • Make modifications as recommended by the participant.

4. Discussion

Changing the health care system to better engage customers (end-users) requires human-centered design, a creative approach to problem-solving and innovation. HCD aims to better understand the needs of customers by observing how they're actually interacting with the health system and then developing tools and approaches based on those findings.

Patient education is a vital aspect of nursing that involves providing patients with information and knowledge about their health conditions, treatment options, and self-care strategies. It plays a crucial role in improving patients' health outcomes, communication, satisfaction, cost-effectiveness, and empowerment.

The most successful education happens when patients are engaged with their health care. Research shows that when patients are educated and engaged with their care, there are significant improvements in health outcomes, patient safety, and healthcare quality (Slade & Sargent, 2023). Also, patient engagement also leads to lower healthcare costs. Effective patient education helps patients to understand their health conditions, treatment options, and necessary lifestyle changes. This understanding encourages patients to comply with their treatment plans and make healthy decisions, reducing the risk of complications.

Learning to teach patients must begin in pre-licensure education and continue with experience acquired throughout practice. High quality education for nurses about patient teaching is a requisite for improving patient health outcomes (Candela et al., 2018; Wakefield et al., 2021). The Human Centered design approach based on the understanding and co-creating interventions with students would serve as a guide for students to learn about patient teaching (Enwerem et al., 2024; G öttgens and Oertelt-Prigione, 2021; Chen et al., 2023).

The World Health Organization has defined life skills as, "the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life." In other words, Life skills are abilities that facilitate the physical, mental, and emotional well-being of an individual (Choudhary et al., 2016).

It is an accepted fact that young people have a right to life skills education, since it provides them with knowledge, and to lead a better, safe as well as dignified life (Idem, 1965).

Also, many teen parents and their babies are at a significant disadvantage because of poverty and inadequate parenting skills (Woods et al., 2003).

In this study, adolescent mothers identified three areas lifestyle education.

Firstly Stress management. Stress is defined as a person's physical, mental, and emotional reaction to a certain stimuli, often known as a "stressor." Stress is the bodies' way of responding to any type of demand. An agent or stimulus that creates stress is referred to as a stressor (Sujaritha et al., 2022). Adverse maternal and child outcomes are associated with parenting stress. Adolescent mothers may be particularly susceptible to parenting stress because of conflicting parenting and developmental demands (Flaherty and Sadler, 2022).

Growing numbers of students in college or graduate school experience high stress, resulting in adverse emotional, academic, and health outcomes. A variety of stress reduction interventions have been used with students (Yusufov et al., 2019). Alongside the risks related to the transition to adulthood and parenthood, adolescent girls face physical changes and potential health complications associated with early pregnancy and childbirth. These complications may elevate stress levels in new mothers, or make them vulnerable to mood disorders. Risks specific to adolescent childbearing include a higher likelihood of obstetric fistula (Tebeu et al., 2012), and of delivering a preterm or low birth weight infant (McCracken and Loveless, 2014; Black et al., 2012; Sedgh et al., 2015). These challenges may trigger or compound existing vulnerability to mental ill-health; conversely, psychosocial distress may make it difficult for pregnant adolescents and young mothers to care for themselves and their infants, leading to poorer health outcomes for mother and child (Kimbui et al., 2018; Laurenzi et al., 2020).

Secondly, Time Management. Another need identified by Teen mothers is to be educated on time management. Studies have shown that the teen mothers spend the majority of their time engaged in instrumental activities of daily living that involved caring for their children because of feelings of obligation, performed most of their occupations at home, and spent more time engaged in passive than active leisure occupations (DeLany and Jones, 2009). School teachers perceive that teenage mothers in school are unable to manage their time which accounts for the consistent lateness to school (Adangabe, 2020). This finding is in agreement with Kaufman et al (2001). Adolescent mothers, returning to school after childbirth found that it is not easy for teenage mothers because of the difficulty of arranging time for education and parenting. Meanwhile, Chetty and Chigona (2008) agreed to the fact that teachers perceive that teenage mothers find it very difficult to combine school and other activities in the home because they cannot balance their time.

Thirdly, another area of interest is Breast feeding. The low rates of adolescent breastfeeding initiation, is a critical public health concern that demands action. Despite the common belief among teens that breastfeeding is healthier, studies found that teens lack specific knowledge about breastfeeding (Smit et al., 2012; and Nelson, 2009). Adolescent mothers lack knowledge about breastfeeding norms and practices such as how frequently babies feed and how to know if the baby was getting enough breastmilk (Nesbitt et al., 2012). Teens' knowledge of breastfeeding may be more limited compared to older women (Spear 2006 and Alexander et al., 2010). Brown et al. 2014, found that adolescent mothers had difficulty finding reliable breastfeeding information on the internet, because of all the numerous information that is available online.

5. Limitation

These findings represent the experience of expectant and parenting teens in Washington, DC making it difficult to generalize the findings to other region.

6. Conclusion

Educating nursing students with the skills to provide person- centered education using Human Centered Design approach, is a good step to reducing poor patient health outcomes. Also, adolescent mothers need to be empowered on education of life skills such as stress management, breast feeding and time management. The authors propose continuing education for all nurses on Human Centered Design to enhance patient-centered education which will reduce readmission and improve adherence to discharge instructions.

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