

“I think deprescribing is very needed in our society:” Healthcare Professional Students Perceptions of Deprescribing Education

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Abstract

Introduction: Deprescribing is a complex and pivotal process in the healthcare system that requires the involvement of different healthcare professionals, as well as patients and family members. Given the multifaceted healthcare professionals involved in deprescribing, fostering interdisciplinary healthcare teams during the didactic and experiential educational engagement is imperative. Thus, this study aimed to characterize healthcare professional students' opinions on the importance of an interdisciplinary approach to deprescribing during the didactic and experiential components of the curriculum. **Methods:** This qualitative study was conducted with healthcare professional students enrolled in a professional degree program at one Mid-South health science center located in the US. Focus groups were conducted via an online platform over three months in 2022, and recruitment continued until thematic saturation was achieved. Using Thematic Analysis, the corpus of the transcribed data was imported into Dedoose®, a qualitative software that facilitated the analysis. **Results:** A total of 36 healthcare professional students participated in four focus groups. Three themes emerged from the data: 1) setting the stage for deprescribing, 2) developing interprofessional deprescribing simulations, 3) potential positive patient outcomes. In the first theme, the healthcare professional students describe current challenges in the deprescribing process that call attention to the interprofessional nature of deprescribing. The second theme demonstrates the necessity of developing interprofessional simulations to educate healthcare professional students in the practice of deprescribing. Finally, in the third theme, the healthcare professional students illustrate the potential of interprofessional education on deprescribing to improve patient outcomes. **Conclusion:** The data highlights that there was strong agreement between extant literature and health professions participants on barriers to deprescribing, including interprofessional communication issues, and on the recommendation to enact interprofessional healthcare simulation education on deprescribing. In addition, the potential benefits of increased interprofessional education will provide immeasurable benefits and create an ample understanding of the health professions roles. These findings suggest that deprescribing focused interprofessional healthcare simulation educational activities should be conducted and assessed.

Keywords: Deprescribing; Healthcare Education; Health Sciences Education; Polypharmacy; Training

Introduction

Deprescribing is a complex process in the healthcare system that involves various members of the healthcare team as well as patients and family members. A systematic review of the evidence available for deprescribing interventions can lead to important benefits for patients.^{1,2} Most healthcare curricula and continuing professional development programs, however, do not offer deprescribing training both in the United States (US) and abroad.³ A unified voice on best practices to teach and

implement deprescribing in healthcare, particularly focused on developing interdisciplinary teams to address this issue, is needed.⁴⁻⁶

Given the various healthcare professionals involved in the deprescribing process, fostering effective interdisciplinary healthcare teams during the didactic and experiential curricula is imperative. Developing interprofessional activities is necessary to integrate many healthcare professional students, highlighting the need for advocating for profession-based educational contexts.⁷ Prior research has highlighted the importance of developing educational programs that address the needs of both healthcare professionals and students.⁸ For example, other researchers have concluded that these programs must emphasize how to develop interprofessional

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teams to enhance communication channels during the deprescribing process and create uniformity regarding deprescribing practices.⁹ In addition, factors affecting student and healthcare professionals' engagement must be explored and better understood when designing and developing these types of programs.¹⁰

There is a breadth of pedagogical opportunities available to develop interprofessional activities. Prior research conducted a needs assessment through an anonymous online questionnaire distributed to various healthcare professionals and students found that healthcare professionals and students preferred videos and case studies.³ Regarding the learning format, the study reported that students preferred a combination of online and in-person delivery, while healthcare professionals favored asynchronous online learning.³ The findings from this study reinforce the need for additional training programs and pedagogical courses focused on deprescribing.³

An interdisciplinary approach is vital for achieving deprescribing goals and reducing polypharmacy. A study conducted at the Boston Medical Center demonstrated that an interdisciplinary team approach comprised of providers and pharmacists yielded a 55% decrease in acid suppression prescriptions from the intensive care unit.¹¹ Although this research demonstrated the importance of deprescribing in healthcare, there is a limited number of studies on how to design a healthcare curriculum to best prepare students to proactively engage in deprescribing. Despite its critical role in patient care, education on deprescribing for healthcare providers lacks consistency and varies significantly across international healthcare curricula.¹² To combat this gap in competency, Farrell et al.¹² developed a pre-licensure competency framework aimed at guiding the interprofessional development of deprescribing skills among healthcare providers from a Canadian perspective. The framework by Farrell et al.¹² outlined education strategies and ways to educate healthcare students and interprofessional providers. This framework could enhance the healthcare members' confidence in stopping medications that are not benefiting the patient.¹²

Previous research conducted with student pharmacists enrolled in three different colleges of pharmacy in the US concluded that "deprescribing is a whole gap," highlighting again the need to incorporate more deprescribing education into pharmacy curricula specifically.⁶

Furthermore, a gap exists in exploring healthcare professional students' perspectives on how to improve their confidence in and skill to initiate deprescribing. This study aimed to characterize healthcare professional students' opinions on the importance of deprescribing and the interprofessional team during the didactic and experiential components of the curriculum.

Methods

This study used focus groups to facilitate group discussion and brainstorm healthcare professional students' opinions regarding deprescribing.¹³ Previous frameworks focused on "general concepts" regarding the prescribing and deprescribing decision-making process in the geriatric population.^{14,15} For this current study, the focus group guide followed a conceptual model by Linskey et al.¹⁶ consisting of formal patient, prescriber, and system factors that support a clinician in the process of initiating and discontinuing a medication. The focus group guide was designed to ascertain healthcare professional students' specific needs for deprescribing, including initiating the process and working with the interprofessional team.¹⁶ Furthermore, the focus group guide utilized open ended questions to encourage healthcare professional students to speak candidly about their interprofessional and deprescribing experiences.

Approval for this study was granted by the University of Tennessee Health Science Center (UTHSC) Institutional Review Board (IRB # 22-08592-XM). The healthcare professional students enrolled in a professional degree program at one Mid-South health science center received an email describing the study and inviting them to participate. The Pharm.D. curriculum consists of three and a half years of didactic classes and one year of clinical rotations (ie, Advanced Pharmacy Practice Experiences or APPE). The College of Pharmacy has three campuses: Memphis, Nashville, and Knoxville. The College of Medicine's main campus, in Memphis, houses both an allopathic medical school, as well as the Physician Assistant program. Additionally, the College of Medicine has campuses in Chattanooga, Knoxville, and Nashville, which serve as clinical placement locations, as well as housing numerous residency programs. Students from the College of Nursing, College of Health Professions, and College of Dentistry attend the Memphis campus as well. In addition to the main campus in Memphis, the University of Tennessee Health Science Center has almost 900 educational and clinical training sites across the state.¹⁷ Approximately 62% of health professions graduates of the University of Tennessee Health Science Center stay to practice in the state of Tennessee, with UTHSC producing 75% of the state's dentists, 34% of the Tennessee's pharmacists, and graduating the most doctorally prepared nurses in the state.¹⁸ Current education on deprescribing in the curricula for healthcare professional students is informal and is not emphasized in accreditation standards for the programs included in the study.

The healthcare professional students self-selected their participation, and inclusion criteria consisted of: (1) adults, (2) students enrolled in a professional program at the time of the study, (3) English as a primary language, and (4) expressed a willingness to share their opinion. Each participant received an Amazon gift card at the end of the study.

Two researchers (AC, DS) with previous experience with qualitative data collection led all focus groups. Both researchers are Ph.D. trained and specialize in qualitative research. The inclusion of an external facilitator (DS) and a College of Pharmacy faculty (AC) for data collection helped to minimize biases and influence relative to the professional students. The research team comprises the authors who obtained Nursing, Physician Assistant, Medical or Dentistry degrees, while AH has received her degree in education and specializes in quantitative data analysis. The entire team reviewed and provided input on the focus group questions.

All focus groups were conducted via an online platform (Zoom® Video Communications Inc., California) to facilitate participation of students from all campuses.¹⁹ A semi-structured focus group strategy was used to welcome the healthcare professional students to discuss their experiences with deprescribing in didactic and experiential educational settings and deprescribing in an interprofessional team. The semi-structured approach allowed the researchers to pose the same questions to each focus group; however, the later focus groups incorporated additional questions raised by earlier discussions. This strategy of integrating further questions enhances the external validity of the study findings.²⁰

Verbal informed consent, which included an explanation of the focus group process and a brief question and answer session, was obtained at the beginning of each focus group. All focus groups were digitally recorded and professionally transcribed to avoid bias. Researchers took field notes during data collection to document non-verbal expressions and interactions. Field notes were used in writing memos in the data analysis process.²¹

Data Analysis and Rigor: The focus group transcripts were analyzed using Thematic Analysis, following the six-step process outlined by Braun and Clarke:²² 1) Familiarization with the corpus of data, 2) Coding the entire dataset inductively, 3) Identifying emerging themes, 4) Reviewing themes with the research team, 5) Defining and naming the themes, and 6) Writing the analysis.²²

Recruiting continued until thematic saturation was achieved and no new themes emerged with subsequent focus groups.²⁰ All transcripts were uploaded into a qualitative analysis software (Dedoose®, Manhattan Beach, California, US), which supported generation of initial codes and the development and review of themes.

Criteria from Lincoln and Guba²³ for demonstrating the quality of qualitative research were met. Auditability was maintained by documenting all memos relevant to interpretations and decisions regarding thematic analysis during data analysis. This process was facilitated by using Dedoose®. Furthermore, to ensure rigor was maintained throughout data collection and

analysis, the research team also followed the 15-point guidelines on conducting Thematic Analysis by Braun and Clarke.²⁴ Confirmability was obtained by using a three-member research team during the data analysis process.²³ The three researchers inductively coded the transcripts, met several times to discuss the codes, categories, themes, and memos, and reached consensus. The rationale for reviewing all extracted data by the third independent researcher was to prevent researcher bias and selective inattention, as well as assisting in identifying rich quotes from the transcripts.

Transferability was addressed by providing “rich” descriptions that resonated with the context.²³ Credibility was achieved throughout all the stages of data collection and data analysis.²³ For example, the research team reviewed all the codes, categories, and emergent themes. Furthermore, the themes, sub themes, and excerpts were sent to the entire team for revision to ensure the study objective was reflected through “rich” or “revealing” quotations relevant to the research question. Most of the excerpts are presented with interpretations to reflect the participants’ meaning.

Results

A total of 36 healthcare professional students participated in four focus groups. Details of the healthcare professional students’ demographics are presented in Table 1. Thematic Analysis revealed three emerging themes telling the story of the deprescribing process through the lens of healthcare professional students. In the first theme, the healthcare professional students describe current challenges in the deprescribing process that call attention to the interprofessional nature of deprescribing. The second theme demonstrates the necessity of developing interprofessional simulations to educate healthcare professional students in the practice of deprescribing. Finally, in the third theme, the healthcare professional students illustrate the potential of interprofessional education on deprescribing to improve patient outcomes.

Theme 1: Setting the Stage for Deprescribing

Many of the healthcare professional students noted various obstacles that must be overcome to initiate the process of deprescribing. Participant 1 gives an example of a routine deprescribing conversation through the lens of a pharmacist:

“So barriers are just getting ahold of the provider and actually being able to speak to them because sometimes you’re put onto a phone tree and you have to hit all of these numbers, you leave a voicemail, and then, two or three days later, the doctor or the nurse maybe calls back, and it might not be the same pharmacist that’s there...So that’s a big barrier is just trying to get ahold of everyone. And then, also, I’ve noticed that some providers, if they’re older, sometimes they tend to be more set in their ways, and so just trying to come into it is like I’m [student is referring to

themselves] trying to learn, tell me more about the situation, just being really open to it.” (FG3 P1 Pharmacy)

As the participant illustrated, the deprescribing process is complex and requires collaboration and support from the entire team of healthcare professionals. In emphasizing their efforts to build a collaborative relationship with other healthcare team members, participant 1 tacitly argues that an interprofessional team that works together to deprescribe will have more success than a singular motivated healthcare professional without adequate support from an interprofessional team.

Participant 2 and participant 6 echoed the need to consider the entire healthcare team when deprescribing, as they illustrate further barriers to initiating deprescribing.

“...I am most concerned about is the ability to coordinate with specialists who start the medication, especially, as mentioned, if you don’t have access to their notes or their records, being able to make sure you know why the medication was started. And also being able to reach out and discuss with the specialist, hey, I think this is causing a problem, this is why I would like to stop it, giving your expert recommendation, is that something we can do or am I really going to mess something up?...So just having that interprofessional communication between physicians in the primary care setting.” (FG2 P2 Medicine)

“I mean, it’s terrible, but we have to talk about it because it happens, the patient is the key because if, especially in terms of opioids and benzos, it’s like, if that doctor is not going to do it, they’re going to go find another doctor who will. A lot of times that happens a lot in our older doctors and pain clinics, and that’s something that’s so subjective because you can’t physically see if someone is in pain.” (FG1 P6 Pharmacy)

Additional participants explicitly illustrated the collaboration between the entire healthcare team, where each team member has a specific role.

“I think consulting with other dentists in our own building and also consulting with other physicians or specifically the physician and just running the idea by them and seeing what they think... that’s motivation to do that, but it has to be in a safe space more so when you go outside of your department because, with dentistry, we feel more comfortable talking to each other about those things...But when it comes to just talking to physicians, that’s where that line gets blurred.” (FG3 P5 Dentistry)

Theme 2: Developing Interprofessional Deprescribing Simulations

Several healthcare professional students highlighted a gap between didactic courses and experiential educational experiences. Participant four opined that the disconnect between didactic lectures and clinicals could be filled by developing interprofessional simulations that better prepare healthcare professional students for interacting with healthcare team members.

“I think we learn a lot about the background, but I think having more simulation options to where we can practice would be good in improving our knowledge and our ability to have those difficult conversations with patients as well as providers.” (FG2 P4 Pharmacy)

A medical student highlights the importance of interaction with other health professionals by providing various activities that could be the foundation for this type of interaction and acknowledging the existence of miscommunication.

“...I’m not sure, but in my medical pre-clinical, they didn’t really teach us how to interact with pharmacy students as much. I personally haven’t seen like any sort of tension between providers and pharmacists, but hearing from today, I see that it is a problem, so one way to improve it is to get more med students to interact with pharmacy students in the TBL [Team-Based Learning] setting, or I guess IPECS [An interprofessional and clinical simulation course] is what they have now. We didn’t have that when I was in pre-clinical, but more of that would definitely be beneficial.” (FG2 P6 Medicine)

The following excerpt recognizes the need for simulations where deprescribing is the main focus and having these prior to clinical rotations.

“...and I think we have interactions with standardized patients, and we have like special interactions, like here’s how you deliver bad news, or here’s how you do something like that, so like having more of that discuss something about deprescribing I think would really make me feel better equipped, especially during the pre-clinical years, as I approach clinical years.” (FG2 P3 Medicine)

Another student reinforces the need for activities on interprofessional simulations that focus on challenging conversations when conveying a difficult message to a patient.

“...what I learned at the start of my clinicals is that I am not good at delivering bad news. And I am not really sure if we’re ever taught about that. Kind of yes, motivational interviewing and stuff like that, but-- like so, for instance, we had a patient who was breastfeeding, and she was on an anti-epileptic medication, and so I had to ask her if she

was still breastfeeding. And she said that she was.” (FG2 P7 Pharmacy)

Use of the example Objective Structured *Clinical Examination* (OSCE) in the following excerpt suggests the need for integration from all aspects of interprofessional education.

“...and I personally do feel like I’m learning by watching my superiors do it, but it would be great to get an opportunity to actually practice that, whether that would be in an OSCE setting or like in a small group setting, anything like that. I think having practical experience and having said the words out loud always helps.” (FG4 P4 Medicine)

Theme 3: Potential Positive Patient Outcomes

When asked to discuss the potential outcomes from implementing interprofessional simulations on the deprescribing process, students offered a myriad of potential positive outcomes. For example, participant 2 described the potential to develop heterogeneous interprofessional teams that work together to act in the best interest of patients.

“In dentistry, one of the goals is prevention, so preventing a lot of these diseases, oral or just overall health, preventing diseases, finding alternative ways to treat things, whether it be I think someone said through physical therapy or exercise or diet rather than jumping to, oh, we have a medicine to fix that, when there may be other ways to treat something.” (FG3 P2 Dentistry)

In the following excerpt, participant four recognizes the importance of deprescribing education and emphasizes the advantages of deprescribing, seen through the lens of both patients and providers.

“I don’t think that deprescribing has ever been more important than it is now because we’ve continued to grow in our awareness of the benefits of deprescribing and the costs of polypharmacy, both-- most importantly the medical cost in terms of adverse effects, but then also the financial cost. And it’s probably one of the areas in which having a team’s approach, or more simply put, an interprofessional approach to delivering healthcare between different team members, it’s probably one of the areas in which that approach is most important.” (FG3 P4 Medicine)

In addition, participant 1 highlighted the potential for heightened awareness of the interconnected nature of healthcare through the inclusion of students in interprofessional teams when engaging in deprescribing education.

“...I think understanding what each profession does and where their niches are can help minimize pharmacologic therapy. There’s an option to try physical therapy for a shoulder before going and getting it replaced. That saves them from having to be put under anesthesia and go through all of that...and with diabetes, pre-diabetes, what’s the biggest recommendation? Exercise, diet, making those interventions sooner rather than later. And at a certain point, it’s like, oh, what do we do? We give you a medication. So, it’s just balancing that and trying to provide health resources to our patients before they become patients, I guess.” (FG3 P1 Pharmacy)

Participant 2 illustrated the importance of addressing “polypharmacy” to enhance patient outcomes.

“...Deprescribing necessarily hasn’t been directly addressed within our curriculum in physical therapy, but the concepts of it have been included. But the concepts of deprescribing and the concepts of finding alternative measures to where that can be addressed that aren’t necessarily medication, not saying that medication is not effective or not a good intervention for a patient to have, but seeing that there are alternative measures that could be completed, like with a physical therapy session or some sort of session with that, that have basically the same effects, if not longer lasting effects.” (FG4 P2 Physical Therapy)

Participant 5 echoes the foundation of deprescribing within their program, emphasizing the necessity of developing a training program focused on improving patient outcomes through deprescribing.

“Similar to what was said earlier, with physical therapy, our goal is to get patients active in order to decrease the amount of medication that they are on, and I think, in a roundabout way, we’ve touched on deprescribing of trying to wean patients off if they’re dependent on like pain medications or different things like that, that they don’t necessarily still need them and that they could still be giving them adverse effects, whether they know it or not.” (FG4, P5 Physical Therapy)

Discussion

Conversations among healthcare professional students who participated in focus group discussions centered around three emerging themes. First, participants spoke of the potential barriers to and motivations for deprescribing. In doing so, they provided contextualization for the rest of their discussions surrounding deprescribing. Second, interprofessional education simulations were proposed to enhance knowledge of deprescribing and to attend to gaps in didactic and clinical deprescribing education highlighted by participants. Lastly, participants spoke of the positive impacts on patient care they

believed would follow an emphasis on interprofessional deprescribing education.

Focus group participants identified several barriers to successful deprescribing, including problems communicating across the healthcare team, difficulties in putting together a full patient history, patient resistance to deprescribing, and discomfort talking across professions. Additionally, participants agreed that the need for less invasive treatment methods and a reduction in the use of prescription medications was a key motivating factor to initiating deprescribing.

Obstacles identified by healthcare professional student participants echoed prior deprescribing research. For example, unpreparedness to deprescribe in a clinical situation was found to be a key barrier to deprescribing among health professions students in medicine, pharmacy, and nursing.⁴ Additionally, patients and their families can be seen as a significant barrier to successful deprescribing.²⁵ Furthermore, in their interviews with pharmacists and physicians, Zielińska-Tomczak et al²⁶ found that pharmacists and physicians were both reluctant to collaborate, which was amplified by fear of judgement and professional stereotypes. Finally, Garfinkel et al²⁷ call attention to the pervasive myth that the cure for all maladies is prescription drugs.

The overlap between barriers to deprescribing identified by focus group participants and the barriers discussed in prior deprescribing research suggest that health professions students are aware of the potential obstacles to successful deprescribing. From an interprofessional education perspective, this alleviates the burden of “selling” the necessity of interprofessional deprescribing education to students. Likewise, the focus group participants routinely called attention to the interprofessional nature of healthcare and the interprofessional nature of deprescribing. Echoing the research, the barriers to deprescribing indicated by participants were primarily related to working and communicating with the interprofessional healthcare team.^{4,25,27}

Healthcare professional students recommended that deprescribing education be delivered via interprofessional healthcare simulations, in addition to receiving greater emphasis in didactic and experiential education settings. The interprofessional simulations would enhance didactic and experiential deprescribing education by providing students the opportunity to practice, in addition to observing or listening. Participants suggested the inclusion of interprofessional scenarios that centered on interacting with various healthcare professionals an activity that may be missing from traditional didactic courses. In addition, participants recommended interprofessional healthcare simulations that train them on having difficult deprescribing conversations with patients and other healthcare professionals. These recommendations align with deprescribing research with student pharmacists, who also

recommended the inclusion of deprescribing education in didactic, clinical, and simulation education to overcome obstacles to deprescribing.²⁸ Raman-Wilms et al.²⁹ go a step further and assert that deprescribing education should be included in accreditation standards and should be integrated into interprofessional education. Finally, Palaganas et al.³⁰ also argue that interprofessional education initiatives would benefit from including healthcare simulation.

The need for additional deprescribing education in the health professions curricula is well documented.⁴⁻⁶ Indeed, this study’s participants voiced the need for additional interprofessional simulations on deprescribing, which represents a clear alignment with existing deprescribing education recommendations. As a result, educational interventions leveraging deprescribing healthcare simulations have the potential to garner wide support from research minded faculty and students alike. Health professions education institutions would do well to follow the suggestions of health professions students when they align so closely with the recommendations in deprescribing education literature.

In addition, participants discussed the benefits of implementing interprofessional deprescribing education. Participants argued that an interprofessional approach to deprescribing can reduce dependence on medications. Participants also postulated that an interprofessional approach could reduce the adverse health and financial impact of polypharmacy. Through interprofessional education activities, health professions students can come to a more complete understanding of each health profession’s roles and can learn about alternative treatments like physical therapy or exercise therapy.

There is a growing body of evidence that shows positive outcomes from interprofessional education, including enhanced collaboration skills and improved attitudes and perceptions among health professions students.³¹ In addition, there is a significant body of research on successful interprofessional education for faculty development that can guide the implementation of interprofessional education for health professions students on deprescribing.³²⁻³⁴ In a systematic review, Ratka et al.³² found that successful interprofessional education programs have institutional support, use interprofessional competencies and linked assessments to measure success, emphasize consensus-building and group communication skills, and are catered to individuals and institutions. Likewise, Silver and Leslie³³ recommend that interprofessional education geared toward faculty development should adhere to the principles of effective learning and be outcomes-based. Similarly, Watkins³⁴ argues that faculty development interprofessional education activities can achieve positive outcomes by attending to role modeling, valuing diversity, focusing on group proves, and providing opportunities for reflection.

Limitations

Due to the qualitative study design, which relied on a small sample size from a singular health science center, the results may not be generalizable to other institutions. The data is based on the lived experiences of the healthcare professional students and may be limited in scope. Additionally, the healthcare professional students might have felt compelled to provide responses that matched the research expectations regardless of their agreement with those expectations. This study indicates that future research is needed on the impact of a deprescribing interprofessional simulation on student perceptions of barriers and challenges regarding deprescribing. Finally, additional studies on the effect of a deprescribing interprofessional simulation on patient outcomes are recommended.

Conclusion

This research contributes to the body of scholarship in deprescribing education by providing three themes by which interprofessional deprescribing education initiatives can be informed. There was strong agreement between extant literature and health professions participants on barriers to deprescribing, including interprofessional communication issues, and on the recommendation to enact interprofessional healthcare simulation education on deprescribing. These findings suggest that deprescribing focused interprofessional healthcare simulation educational activities should be conducted and assessed.

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Table 1. Demographic Data of Focus Group Participants (n=36)

Demographic Data		N	%
College	Medicine	14	38.9
	Pharmacy	12	33.3
	Dentistry	4	11.1
	Physical Therapy	3	8.3
	Nursing	2	5.6
	Graduate Health Sciences	1	2.8
	Year in Program	1	9
	2	10	27.8
	3	8	22.2
	4	9	25.0
Age	22-25	21	58.3
	26-29	10	27.8
	30-33	3	8.3
	34-38	2	5.6
Race	Caucasian	19	52.8
	Asian	10	27.8
	Black/African American	2	5.6
	Arab/White	2	5.6
	Indian	1	2.8
	Choose not to disclose	1	2.8
	Forgot to answer	1	2.8
Gender	Female	24	66.7
	Male	12	33.3
Urban-Rural Classification	Urban	19	52.8
	Rural	14	38.9
	Both	2	5.6
	Neither	1	2.8