

Research Article

Perspectives of Health Care Services among Free Clinic Patients in the USA: A Qualitative Study

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ABSTRACT

The United States (US) is the only developed country which does not have universal health insurance. Free healthcare clinics are operated largely by volunteers for the purpose of providing healthcare services to populations who are under- or un- insured in the US. Few qualitative studies have been conducted on patient experience and satisfaction at free clinics and, of those that do exist, most have been administered through focus groups. Thus, the purpose of this study is to explore perceptions and satisfaction among patients at a free clinic using a qualitative approach. Free clinic patients (N=649) participated in a survey with one open-ended question asking about their perceptions of the free clinic in 2017. This study analyzed the qualitative data from the open-ended question only. On average, the participants responded as being grateful and satisfied with the services provided by the free clinic. However, participants felt that they would benefit from further continuity of care and a higher number of medical providers, as well as more specialists. Future services to be modified or added, as indicated by the participants, include a greater variety of class times for health education and exercise classes, as well as the addition of urgent care services. To improve patient satisfaction, it is recommended to increase promotions for volunteer opportunities in addition to more training. Furthermore, it is necessary to give patients better access to referrals to community resources that offer the additional services that they are interested in.

Keywords: Patient satisfaction; Medically uninsured; Free clinics; USA

Introduction

In 2016, approximately 27.6 million people in the United States (US) were without health insurance coverage [1]. For Americans, access to health insurance is typically associated with employment and obtained through either private or government programs [2]. Individuals and families who do not have health insurance, however, often have limited options for financing their health care needs [2]. Free healthcare clinics are non-profit and operated largely by volunteers for the purpose of providing free or reduced fee healthcare services to populations who are un- or under insured in the US [3-5]. The first free clinic in the US was founded in 1967 [5]. There are more than 1,000 free clinics in the US [5]. Free clinics patients are not only living in poverty but also often suffering from poor physical and mental health [6]. The existence of free clinics is imperative given the healthcare needs of individuals and families without health insurance coverage.

Uninsured patients' experiences in a health care setting may be limited to emergency rooms or free clinics [7]. Uninsured populations may therefore have little familiarity with continuity of care in terms of coordination and communication, a characteristic that previous research has identified as a significant indicator of patient satisfaction [8]. Previous studies have correlated patient satisfaction with free clinic resources such as interpreter services and health education services [9-11]. In general, patients are satisfied with services provided by free healthcare clinics, and participation in health education classes are found to be beneficial and contribute to patient satisfaction [9,10]. Existing research concludes that patients served by a free healthcare clinic are generally satisfied, but would experience higher satisfaction with the opportunity for increased awareness of programs and services that free clinics offer [12]. However, there are few qualitative studies on patient experience and satisfaction at free clinics and of those that do exist, most have been administered through focus groups [13,14]. It is important to capture voices of free clinic patients in a written, anonymous questionnaire format, as this manner may provide more insights.

The purpose of this study is to explore perceptions and satisfaction among patients at a free clinic using a qualitative approach. There is a scarcity of studies that have investigated patient satisfaction at free clinics utilizing a qualitative methodology [15]. To address this scarcity, this study focuses on the perspectives of individuals and families without access to health insurance. The aim of this study is to highlight their voices with regard to the quality of their experiences and services received within a free healthcare clinic. Patient satisfaction and experience being expressed anonymously is important when understanding the opinions and insights of this population. To our knowledge, very few studies have provided patients at a free clinic an anonymous outlet to express their perceptions and satisfaction of the clinic.

Methods

Setting

This study was conducted at a free health clinic in the Intermountain West, which provides medical services to

uninsured individuals who have a household income that is below 150% of the federal poverty level. About 66% of the patients served are between 31-64 years old, and 54% of the patients served are unemployed. About half of the clinic patients are Hispanic. The clinic is primarily funded through donations and grants, with 95% of the donations used directly for patient care, and the remaining 5% is used for management and fundraising. The clinic is run by over 400 volunteer doctors, nurses, patient care techs and administrators as well as 12 paid staff, medical students, physician assistant students, pharmacy students and nursing students. The clinic has been in operation since 2005, and is open 5 days a week. There are no religious affiliations with the clinic, and it is classified as a non-profit organization. In 2016, the clinic had a total of 15,344 patient visits, and a total of 28,819 volunteer hours. Over 5,000 individuals in the nearby community receive primary care at the clinic. Services that the clinic provides include but are not limited to family medicine, counseling, and healthy living classes. The clinic does not provide the following services: urgent care, prenatal care, dental care (except for adult tooth extractions), and prescriptions for controlled substances.

Data collection and participants

This study was approved by the Institutional Review Board (IRB). In 2017, three self-administered surveys (one from January to April, one from May to July and one from August to December) were conducted to gather patient perspective on various topics (e.g. transportation barriers, cancer risk awareness, patient adherence to provider recommendations). At the end of each survey, one open-ended question regarding perspectives of the clinic's services was included ("Please give us your comments on how [name of the clinic] could improve to fulfill your needs and the needs of your community"). This study analyzed the qualitative data from the open-ended question only. Participants were patients of the clinic, ages 18 years or older and spoke English or Spanish. All survey materials were available in English and Spanish. Participants were recruited based on a convenience sample by a student assistant in the waiting room of the clinic. If a potential participant expressed interest, he or she received a consent cover letter and a survey instrument. Consent was obtained from each participant. The student assistant was available at the clinic waiting room for question regarding the survey instrument if needed. A participant received a small gift (US$ 1 or less-e.g. tooth brush, sample sunscreen) at the time of the completion of the survey.

Data analysis

The data analysis procedures were based on Creswell and Creswell [16]. First, the data were organized to prepare for analysis. Second, two authors (EP and MS), who are fluent in Spanish, translated Spanish answers into English. Data were analyzed based on themes. Third, three authors (AK, NJ and EP) reviewed all the data to develop the general sense of the meanings of the data. Fourth, two authors (NJ and EP) separately conducted initial coding based on themes. Fifth, the other author (DH) merged their codes and finalized the codes. Then, NJ and EP separately organized the data by the codes. Subsequently, The Principal Investigator (AK) merged their analysis. Finally, the first author (NJ) identified representing descriptions and themes. All authors checked accuracy and consistency of the results. To ensure validity, broad descriptions which include both negative and positive information were included. For reliability, the definitions of codes were clearly defined. In addition, cross-checking codes was performed to confirm reliability.

Results

Participant characteristics

The characteristics of the participants are presented in (Table 1). Over half of the participants were Spanish speakers. The majority of the participants were from Latin America, with only 21.7% of the participants from the US. About half of the participants have been patients of the clinic for two years or more, and the majority of the participants were female. Overall, more than half of the participants reported having a high school degree or less, and 20.5% reported having a full-time job. Approximately half of the participants were married, and the mean age of the participants was 50.14(SD=13.66).

Gratitude

Overall, the participants expressed extensive gratitude toward all of the providers and volunteers that staff and operate the clinic. The gratitude patients expressed typically focused on the quality of the services they received and to the attentiveness of the staff who delivered the services. One participant said, "*I think the clinic provides excellent care. I have always been*

Table 1: Participant characteristics.

	Frequency (%)
Language - Spanish	360 (55.5)
Patients of the clinic 2+ years	329 (50.7)
Female	449 (69.2)
Country of origin	
Mexico	218 (33.6)
US	141 (21.7)
Venezuela	39 (6.0)
Peru	27 (4.2)
Tonga	25 (3.9)
Brazil	18 (2.8)
El Salvador	15 (2.3)
Guatemala	14 (2.2)
Educational attainment – high school or less	376 (57)
Full-time job	133 (20.5)
Married	309 (47.6)
	Mean (SD)
Age	50.14 (13.66)

Frequencies: N=649
Other countries of origin less than the frequency of 14: Angola, Argentina, Samoa, Cambodia, Chile, China, Columbia, Ecuador, Egypt, Ethiopia, Honduras, Iran, Iraq, Liberia, Marshall Islands, Morocco, New Zealand, Pakistan, Philippines, Poland, Russia, South Korea, Spain, Thailand, Uruguay, USSR

treated with respect. I'm amazed how caring the people are in this clinic." Also addressing the attentiveness of the staff, another participant responded, "*All of the personnel are very attentive and the service is very good. Thus I do not have any inconvenience only to say that it is the best in service. And thank you.*"

Participants consistently noted the quality of the services they received and their appreciation for these services. They likewise regularly observed that the free clinic provides care for those who have low income and lack health insurance. Reflecting the perspectives typical of patients, one participant wrote, "*Everything is good, thank you because this clinic is very necessary for us who don't have money or resources for appropriate medical attention. . .*" Another participant stated, *"It seems to me an excellent help and service especially for those like me who don't have medical insurance. Really, thank you for the help."*

In general, the participants thought that the clinic was helpful for all populations including self-identified racial minorities and un- or under- insured individuals and families. For example, since many of the patients who come to the clinic are Latino, the barrier of being a racial minority was mentioned at several points by the participants. One of the participants stated, "*For us Hispanics it is very difficult to have medical insurance. This clinic is the best help that you could give us. Thank you for your attention god bless everyone who has formed part of this clinic*." The Latino population was highlighted again when another participant said, "*The clinic is excellent it offers a great benefit for the more vulnerable community. Above all to the Latinos of this country. Thank you very much for your service*." The participants felt that as racial minorities, they received quality services at the free clinic. Because participants were aware that the services provided by the free clinic are not, in general, readily accessible to this population, they tended to express gratitude for these services and the staff at the clinic.

Receptionists and front desk

The front desk of the clinic is mostly run by paid staff. Overall, participants expressed appreciation to receptionists and front desk: e.g. "*Everything is very good, the receptionists are very kind and the doctors listen well to their patients and thank you very much for helping all of us who don't have health insurance*." As it is usually very difficult to satisfy all patients in any aspects of services, it is not surprising that there were some negative comments on receptionists and the front desk. For example, one of the participants said, "*It is a very good clinic, they have helped me a lot with my health and the doctors are excellent people. Only that sometimes the receptionists could be nicer with the patients and put on a smile.*" It is important, however, to note that not all of the participants felt that the receptionists were unfriendly. Some participants felt that more training would solve these issues (e.g. "*Sometimes lab appointments are not upload into the system so I have to take lab test twice this is a problem because of work*").

Wait time

Wait times to make an appointment and in the waiting room at the clinic are not longer than those at regular clinics in the same geographical area. Interestingly, however, many of the participants felt that the wait times to either see their provider or make an appointment were too long. Despite the gratitude that patients consistently expressed about their experiences at the free clinic, the long wait times were consistently identified as problematic. One participant said, "*Sometimes waiting time exceeds what is normal. Last time I had to wait for more than an hour to see the doctor which means I was losing work hours."* As suggested by this patient, many patients experienced more than inconvenience as a result of the long wait times that they were regularly confronted with at the free clinic, although the actual wait times are not long compared to regular clinics. While the long wait times experienced by many patients at the clinic were mostly based on perceptions, not based on the comparison in actual wait times with regular clinics, perceived long wait times may reduce patient satisfactions.

Providers

The matter of rotation of providers and continuity of care was a main topic. Many of the participants felt that having the same provider for each visit would be beneficial to the quality of their care, even if they already receive quality care. Reflecting the perspectives of many respondents, one participant said, "*The quality of service is good, but the doctors rotate constantly and you lose the doctor-patient relationship*." Patient satisfaction was also negatively impacted by decreased continuity in the doctor-patient relationship from the perspective of the patient. Participants frequently felt that providers have a better understanding of a patient's health condition when the relationship between patient and provider is more consistent and less on a rotational basis.

To address the need for increased continuity in patient-provider relationships, and therefore an increase in patient satisfaction, for instance, one participant observed:

It would be good if possible if each doctor was assigned to their patients. That way he or she will know and understand more the history of the patient. A few times I have come and almost always the doctor is different and some of them really have no idea of what is happening and even though they read the written information that the doctor who saw me before they don't understand my case….

Having the same provider at every appointment may not be entirely possible because of the nuanced schedule associated with providers who are volunteering their time. It is important to note, however, that there are several paid providers on staff at this particular clinic, therefore, patients have the option to see the same primary care provider every visit. Some patients may be choosing appointments based upon convenience of time instead of seeking provider continuity.

Participants also felt that there should be more providers available. One participant said, "*Have more providers available on weekends*" and another participant said, "*Perhaps*

more doctors because there's so many people wanting an appointment…" Since there are many students (for example, medical students or physician assistant students) that volunteer and attend to the patients, some participants would like to be assessed by more experienced professionals. One of the participants said, "*I have been at this clinic three times and I have never been seen by an actual physician, first it was a nurse and after they have been students I would like to be seen by a physician…."* Comments such as this may also be a reflection of patient misunderstanding between the scopes of practice among doctors, physician assistants, and nurse practitioners.

Some of the participants felt that the providers could give better quality of services. One participant said, "*I sometimes feel that the doctor has little interest in my illness…"* while another participant said, "*Check more adequately our symptoms that we tell you*." The quality of care given to the patients was not always perceived as attentive.

Many of the participants stated that they wanted more specialists as well. Some of the specialists that the participants mentioned were dentists (e.g. "*I'd like for there to be a dentist, otherwise everything else is excellent*"), gynecologists (e.g. "*I have been waiting too long for a visit with a female gynecologist*"), and psychiatry (e.g. "*Hopefully psychiatry and psychology unites with the clinic*").

Services offered

A multitude of participants felt that having health education classes and general health information given to them would be beneficial. One participant said, "*Give us a class about weight and something to help motivate us to not eat so much because sometimes it helps to talk to someone about obesity*." When it comes to the health education classes, some participants wanted those classes to be offered more often (e.g. "*The classes of 'free consultation of health*' *it would stupendous if they could offer more options for days to attend them apart from Thursday other options of days*").

Translation services were a type of service that the participants were generally satisfied with, but felt that more translators are needed, as well as more translators that speak different languages. One participant said, "*More volunteers with lots of languages in order to have better options*."

Facility

One of the main issues that participants had with the facility was parking. A large number of the participants felt that there was not enough parking spaces. One participant said, "*The only problem that I see is parking because sometimes it is very complicated*." Also, the expansion of the clinic in terms of adding more branches throughout different cities was cited as a point of interest by patients (e.g. "*The clinic should have more branch offices and grow more*). Expansion of the actual clinic was discussed in terms of adding more space for things such as areas dedicated to children (e.g. "*A special room for the children who come with their mothers*"), and extra space in the waiting room. It can be noted that this particular clinic is in the process of relocating to a larger building with more parking, thus attempting to address patients' concerns.

Suggestions

Many of the participants felt that there were some other services that could be offered at the clinic, as well as some suggestions for existing areas that they felt could use improvement. Some services to be added as mentioned by participants included: free food, putting information about existing services on the internet, adding urgent care/emergency medicine, Zumba classes, and help with obtaining prescriptions. One participant said, "*If the condition is life threatening to have free vouchers available for surgery to save lives*." Areas of the facility that some participants felt could use attention had to do with keeping the area cleaner and more updated (e.g. "*The only thing that I'd like to see is a cleaner place, I understand that you have a lot of patients but also we could contribute to something, and have this place very nice making repairs such as painting*").

Discussion

This study explored patient perspectives and satisfaction at a free clinic and had three main findings. First, although participants were generally grateful and satisfied with the quality of services given by the clinic, the interactions that the patients had with volunteers and providers occasionally detracted from their overall satisfaction. Second, the responses from the participants suggested that they perceive continuity of care to be an important factor in the quality of the care that they receive. Third, participants felt that they would be more satisfied with the addition of other specialists and services to the clinic.

The interactions that patients have with staff, volunteers and providers has been identified as a factor in patient satisfaction in previous studies, especially in regards to phone calls and wait times, though the actual waiting time is not longer than that at other regular clinic in the same geographical area [12,17]. Since the clinic is run mostly by volunteers who do not always feel that they receive proper training, the attitudes of some receptionists which were negatively perceived may be due to the fact that they had multiple tasks at the front desk. Patients' perceptions on their time being respected and communication with staff has been associated with patient satisfaction [18,19]. A possible solution is to train the volunteers on customer service while increasing the number of receptionists at the front desk, which may in turn improve the patients' experiences at the clinic.

While the continuity of care has been identified as important for patient satisfaction because of its association with communication and coordination, a previous study has found that it is not always necessarily perceived to be a positive element for patients [8,20-22]. In contrast, this study found that when respondents mentioned continuity of care in terms of a continuous relationship between a provider and a patient, it was discussed as a necessary feature in their satisfaction of their care. This is consistent with a previous study that found that patients were more likely to report satisfaction with medical services when they always saw the same provider [23]. Since over half of the patients served at the clinic are unemployed and are persons of vulnerable populations, they may not typically

experience continuity of care of any kind [7]. The benefits that are associated with continuity of care is perceived as essential for the patients at the clinic.

Additionally, it is not possible to add every service that was suggested by the participants to the clinic. Many of the participants indicated that they would experience increased satisfaction with the addition of Zumba classes, free food, and free vouchers for surgery. While it is important to listen to patient opinions, it is also important for patients to understand that the clinic does not necessarily exist to provide everything that patients feel that they need. This is consistent with previous studies that have also found that patients have expressed a desire for extra services that are not related to direct medical assistance [12]. One way to potentially resolve this is to refer patients to programs of interest. Of note, this clinic does have a resource office that is staffed by volunteers. In addition, non-profit social service organizations in the same community may provide services to free clinic patients [24]. However, it is possible that patients do not have adequate information on how to properly seek out and utilize the resource office.

Further, participants indicated that they would benefit from more specialists, such as dentists, as well as a higher number of physicians. This relates to a previous study on volunteer experiences at a free clinic, because it was found that there is a consistent shortage or frequent turnovers of volunteers at free clinics [18,25,26]. A possible solution to this would be to promote volunteer opportunities, as well as promote the benefits of volunteering in order to obtain more volunteers [18,26]. Additionally, fortifying health care provider volunteer programs and internal physician networking are some suggestions that previous studies have proposed [27].

While this study provided insights of patients at a free clinic, there are some limitations. First, the majority of the respondents were female, so most of the perspectives were that of a female. Second, most of the respondents come from Latin America, with over half of them being Spanish speakers, so the perspectives of patients of other races and ethnicities were not included. Future studies should attempt to obtain the perspectives of other patients who do not speak Spanish or English. Finally, this study was conducted at one free clinic, thus reducing the generalizability of the results. However, this study is qualitative and thus does not aim at generalizing the results.

Conclusions

This study explored patient perceptions and satisfaction at a free clinic using a qualitative approach. Participants were generally satisfied and grateful for the services that they received, but felt that their satisfaction was occasionally impeded by their interactions with volunteers and providers, and wait times for appointments. Training volunteers on customer service could be one way to improve patients' satisfaction. Additionally, participants' perspectives indicated that they would benefit from continuity of care, less rotation of providers, and an increase in the number of physicians and specialists available. Finally, participants expressed interest in additional services, such as exercise classes. Referring patients to nearby additional community resources could potentially enhance patient satisfaction.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Ethical Approval

The University of Utah Institutional Review Board (IRB) approved this study.

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REFERENCES

1. https://www.kff.org/uninsured/fact-sheet/key-facts-about-the-uninsured-population/
2. https://www.census.gov/content/dam/Census/library/publications/2017/demo/p60-260.pdf
3. Nadkarni MM, Philbrick JT (2003) Free clinics and the uninsured: the increasing demands of chronic illness. *J Health Care Poor Underserved*. 14:165-174.
4. Nadkarni MM, Philbrick JT (2005) Free clinics: A national survey. *Am J Med Sci*. 330:25-31.
5. Schiller ER, Thurston MA, Khan Z (2013) Free clinics stand as a pillar of the health care safety net: Findings from a narrative literature review. In: Brennan VM, ed. Free clinics: Local responses to health care needs. Baltimore, MA: Johns Hopkins University Press.
6. Kamimura A, Christensen N, Tabler J (2013) Patients utilizing a free clinic: physical and mental health, health literacy, and social support. *J Community Health*. 38:716-723.
7. Kamimura A, Nourian MM, Jess A, Chernenko A, Assasnik N, et al. (2016) Perceived benefits and barriers and self-efficacy affecting the attendance of health education programs among uninsured primary care patients. *Eval Program Plann*. 59:55-61.
8. Haggerty JL, Roberge D, Freeman GK, Beaulieu C (2013) Experienced continuity of care. When patients see multiple clinicians: A qualitative meta-summary. *Ann Fam*.11:262-271.

9. Kamimura A, Ashby J, Myers K, Nourian M, Christensen N, et al. (2015) Satisfaction with healthcare services among free clinic patients. *J Community Health*. 40:62-72.

10. Kamimura A, Booth C, Johansen M, Morales U, Ashby J, et al. (2017) Home dental care education for uninsured free clinic patients in the United States. *Divers Equal Health Care.* 14:296-301.

11. Shi L, Lebrun-Harris LA, Daly CA (2013) Reducing disparities in access to primary care and patient satisfaction with care: The role of health centers. *J Health Care Poor Underserved*. 24:56-66.

12. Kamimura A, Ashby J, Trinh HN, Prudencio L, Mills A, et al. (2016) Uninsured free clinic patients' experience and perceptions of healthcare services and patient education. *PXJ*. 3:12-21.

13. Kamimura A, Ashby J, Trinh HN (2016) Uninsured free clinic patients' experience and perceptions of healthcare services and patient education. *PXJ.* 3:12-21.

14. Kamimura A, Chen J, Aguilera G (2017) Patient satisfaction and perspectives of continuity of care among free clinic patients in the USA: A qualitative study. *Divers Equal Health Care.* 14:169-174.

15. Pope C, Mays N (1995) Reaching the parts other methods cannot reach: An introduction to qualitative methods in health and health services research. *BMJ*. 311:42-45.

16. Creswell JW, Creswell JD (2018) Research design: Qualitative, quantitative and mixed methods approaches. 4th ed. Thousand Oaks, CA: Sage Publications.

17. Feddock CA, Hoellein AR, Griffith CH (2005) Can physicians improve patient satisfaction with long waiting times? *Eval Health Prof.* 28:40-52.

18. Gorski HP, Gull B, Harris T, Garfield T, Ashby J, et al. (2017) Volunteer experiences at a free clinic in the United States: A qualitative study. *Divers Equal Health Care.* 14:130-135.

19. Thornton RD, Nurse N, Snavely L (2017) Influences on patient satisfaction in healthcare centers: A semi-quantitative study over 5 years. *BMC Health Serv Res*. 17:361.

20. https://www.rand.org/pubs/research_briefs/RB9795.html

21. van Walraven C, Oake N, Jennings A (2010) The association between continuity of care and outcomes: A systematic and critical review. *J Eval Clin Pract*. 16:947-956.

22. Kamimura A, Chen J, Aguilera G, Stoddard M, Sin K, et al. (2017) Patient satisfaction and perspectives of continuity of care among free clinic patients in the USA: A qualitative study. *Divers Equal Health Care.* 14:169-174.

23. Fan VS, Burman M, McDonell MB (2005) Continuity of care and other determinants of patient satisfaction with primary care. *J Gen Intern Med.* 20: 226-233.

24. Meng HW, Sin K, Pye M (2018) Barriers and facilitators to healthy lifestyle among refugees resettled in the United States. *Divers Equal Health Care.* 15:1-8.

25. Kamimura A, Christensen N, Nourian M (2014) The relationship between diabetes attitudes and treatment among free clinic patients and volunteers. *J Community Health*. 39:1186-1192.

26. Kamimura A, Garfield T, Tabler J (2018) Motivations and outcomes of volunteers at a non-student-run free clinic. *Divers Equal Health Care.* 15:9-14.

27. https://doi.org/10.1377/hlthaff.26.3.87

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