Original Article

A Pilot Study on Improving Patient Satisfaction in Kazakhstan: A Service Design Approach

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Abstract

Background: Service design method is a user-centric approach to improve the service through the patient point of view. The general purpose of the study was to improve satisfaction and increase service delivery in the occupational health clinic. **Materials and Methods:** This is descriptive, qualitative study that utilized a service design approach and was conducted at an Occupational Health Clinic in Kazakhstan from March to September 2022. Data collection methods included observation and semi-structured interviews. The study involved the participation of 15 patients and 5 nurses. **Results:** The collaborative efforts of the multiprofessional team resulted in significant enhancements to patient satisfaction and service delivery at the occupational health clinic. Initiatives such as addressing wait times for medical documentation led to notable improvements, as reflected in positive feedback from 15 patients. The overall quality of medical service received earned an impressive average rating of 5 out of 5, signaling the successful achievement of the research aim. **Conclusions:** The implementation of targeted initiatives, guided by a service design approach, has unequivocally elevated patient satisfaction and streamlined service delivery within the occupational health clinic. The collaborative efforts of the multiprofessional team, exemplified by initiative measures and innovative solutions, have addressed key areas such as waiting time, appointment organization, and recreational offerings. These outcomes not only validate the efficacy of the undertaken changes but also underscore the clinic's commitment to continuous improvement in fostering a patient-centric and efficient healthcare environment.

Keywords: *Health service research, nursing, occupational health, patient satisfaction, user-centered design*

Introduction

The problem of occupational diseases is relevant throughout the world, as many workers are at risk of exposure to hazardous factors in the workplace. Occupational health is not only a public health issue, but also an economic issue.[1] The field of occupational diseases is still developing in Kazakhstan, and therefore, the detection and registration of morbidity are very low. Despite this, in Kazakhstan there is an increase in the number of citizens with occupational diseases. According to the Bureau of Statistics of the Republic of Kazakhstan, the annual number of those who were diagnosed for the first time has increased 2.5 times over the past few years.[2] In this regard, the relevance of studying the situation with occupational diseases and satisfaction in matters of occupational diseases is growing. The ongoing enhancement of the medical service delivery process holds a crucial position within the healthcare system, with a growing emphasis on technological advancements, infrastructure improvements, and effective management methods that consider the perspectives of all stakeholders, particularly the service users—patients.[3]

Service design, as proposed by Stickdorn *et al*. (2018),[4] is an approach aimed at innovating and improving services to ensure their utility, usability, desirability for clients, and efficiency and effectiveness for service providers. The process involves an exploration of the daily experiences of both service users and providers to identify existing problems. While solutions emanate from service providers, Faerden *et al*. (2023)[5] assert that user needs are the primary drivers of progress.

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Lorusso *et al*. (2021)[3] highlight the recognition within the business community of the value of "design thinking" as a means to innovate in meeting people's needs, underscoring its potential benefits for healthcare systems. This method of planning and implementing change places a strong emphasis on a holistic, multidisciplinary, and integrative approach that fully understands the target group, users, and context.[4] It is inherently user-centric, involving collaboration between service providers, end-users, and stakeholders throughout the design process. Notably, it can be applied to develop person-centered care,[6] identify current issues for pathway improvement, and introduce new services.[7]

The service design approach has found utility in numerous health and nursing research endeavors, contributing to the enhancement of existing services or the creation of novel ones.[8,9] Particularly relevant in nursing, this approach positions nurses as investigators, allowing them to scrutinize problems from the perspective of their patients.[10] Data collection methods such as interviews, shadowing, and surveys are integral components of the service design approach.[11,12] The service design approach can be used in improving nursing care in practical healthcare.[13-15] As described in the study by Brooks-Carthon *et al*.[16] (2021), nurses were prominent in the research team as they are natural problem solvers due to their training and experience in critical thinking and clinical judgment. With their knowledge of provider workflow and patient needs, the course was quickly tailored. What proves is that this method can solve the problems that nurses face at the bedside using creative, patient-centered approaches.

A notable advantage of service design is it is an ability to discern problems from the standpoint of both patients and healthcare professionals. For instance, Faerden *et al*. (2023)[5] posit that service design can elucidate why patients may express dissatisfaction with services despite receiving high-quality medical care that they might find challenging to recognize, explain, or articulate. This study aimed to enhance satisfaction levels and optimize service delivery within the Occupational Health Clinic in Kazakhstan.

Materials and Methods

Employing a qualitative research design, our study sought to elevate both patient satisfaction and the overall volume of services rendered. The qualitative approach allowed to gather information directly from the perspective of patients.[17] Furthermore, qualitative methods enable a deeper understanding of patients' viewpoints and are not constrained by the structured questions typical of quantitative surveys.[18] Moreover, when examining patient satisfaction, focus group interviews are widely utilized in healthcare, as evidenced by studies conducted by Khalife *et al*. (2023)[19] and van den Boom *et al*. (2022).[20] The study consisted of two main parts: the first part of the study was aimed at implementing a service design approach to improve patient satisfaction and the second assessed satisfaction before and after implementation. The methodological framework of service design was applied, utilizing the shadowing method and semi-structured interviews facilitated by the service design toolkit (SDT).[21] A meticulously curated multidisciplinary group conducted seven workshops scheduled from March to September 2022. Patients hospitalized in the therapeutic department of the Occupational Health Clinic at the Institute of Public Health and Occupational Health, operated by the non-commercial joint stock company "Karaganda Medical University" under the Ministry of Health of the Republic of Kazakhstan were included. This clinic oversees the service of professional pathology in the Republic of Kazakhstan. Overall, 15 patients and 5 nurses took part in this study. We used convenience sampling to recruit participants into the research. All patients undergoing treatment in the therapeutic department of the clinic were invited to participate in the study. The patients who took part in the study were patients with occupational pathology associated with activities in coal mines aged 40–60 years. Recruitment was stopped when data saturation was reached. No participants withdrew from the study during the data collection and analysis.

A survey was conducted at the beginning of the service design process and 3 months after completion to assess patient satisfaction. To conduct the survey, a standardized questionnaire was used, approved by the Order of the Chairman of the Committee for Medical and Pharmaceutical Control of the Ministry of Health of the Republic of Kazakhstan "On approval of an algorithm for determining patient satisfaction with the quality of medical care through the use of departmental information systems."[22] The survey involved patients who received treatment at the occupational health clinic.

The development of our service design project adhered to the systematic framework of the "Double Diamond" scheme, encompassing four distinctive stages: detection, definition, design, and development.[23] Each phase was strategically aligned with the overarching objectives of identifying unmet needs, conceptualizing service insights, crafting services to address identified needs, and formulating a service model conducive to practical implementation.

Discovery Phase. In the initial "discovery" phase, we employed a suite of tools, such as "1A. Define: the development challenge," to precisely delineate the primary objectives and tasks of the development project. To comprehend the patient's journey—pre-service, during service, and post-service—we utilized an array of tools including "1B The customer's service pathway," "1C Select your tools and design your study," "1D See your service through the customer's eyes," "1E Framing:

Research questions," and "1F User Journey Plan Observation: shadowing user journey for shadowing and interviewing." These tools were instrumental in unveiling user perspectives, their interactions with existing services, and the root causes of challenges encountered during hospitalization. The interview involved semi-structured interviews with patients and nurses. Patients were asked a number of questions, including experiences preparing for hospitalization, consultations with healthcare professionals prior to referral to an occupational disease clinic, testing for hospitalization, and overall experiences in the clinic. The characteristics of a typical day of hospitalization, the speed of admission and distribution to departments, as well as instructions that did not lead to agreement, were studied. They were also asked about difficulties associated with the rules of the regime. Patients were given the opportunity to express their views on measures aimed at improving satisfaction with hospitalization. Specifically, nurses were asked about patient characteristics, their chief complaints, areas where the clinic received positive feedback, and suggested actions to improve overall satisfaction with the hospitalization. These requests covered various aspects, from patient experience to the internal efficiency of the clinic, and served the purpose of deeper analysis and subsequent improvement of the quality of services provided.

Nurses meticulously shadowed service users, documenting facial expressions and behaviors during patient care activities. Through the completion of relevant forms, nurses envisioned emotional reactions, while "the customer's service pathway" tool provided valuable insights into service aspects requiring improvement and pinpointed areas where patients faced difficulties.

Defining Phase. Moving into the "define" phase, we harnessed tools such as "2A Empathy map," "2B The customer's point of view," "2C Mind Map," and "2D Forming solutions" to unravel patients' thoughts, emotions, and perceptions. This process enabled us to identify patient needs and challenges, paving the way for a collaborative generation of innovative ideas to address these issues. Creative solutions were explored through group discussions and brainstorming, utilizing visual "mind mapping" processes to distill meaningful insights. Importantly, the original aim persisted, but user needs and desires underwent refinement.

Developing Phase. The subsequent "Develop" phase unfolded in three strategic steps: 1) identifying typical customers; 2) detailing customer characteristics; 3) anticipating their needs, problems, opportunities, and life ethos. Employing tools like "3A Customer Profiles" and "3B Person Template," we crafted four distinct patient profiles, elucidating their journeys before, during, and after service interactions. These profiles, presented as narrative short stories, incorporated familial and occupational aspects, needs, and challenges. Simultaneously, solutions were formulated for the identified problems.

Delivering Phase. The final phase, "Delivering," utilized the 4A service design toolkit to collect, refine, and actualize the proposed service improvements. Preceding the solution's implementation and three months thereafter, a comprehensive assessment of patient satisfaction with clinic services was conducted. Fifteen patients participated in this evaluation, offering invaluable feedback on their satisfaction and gauging their perceptions of the changes in services implemented by nurses.

Ethical considerations

The study was conducted in accordance with relevant ethical guidelines, including an oral explanation and written informed consent from the participants. The service design project and assessment study were approved by the local bioethical committee (Bioethics Committee of Karaganda Medical University, Karaganda, Kazakhstan; Act No. 13, 18.07.2022г).

Results

This study engaged actively with a cohort of 15 patients and 5 nurses from the Occupational Health Clinic at Karaganda Medical University in a transformative service design project. Notably, the clinic's primary clientele comprises miners and workers from industrial plants and factories, making their experiences pivotal in shaping the success of healthcare delivery.

Discovery Phase. Commencing with the "discovery" phase, the study embraced the service design approach, setting forth to define project objectives and users of services. Researchers, supported by facilitators, meticulously charted the customer's service pathway through a blend of shadowing and interviews with patients and nurses. This phase provided a nuanced understanding, spotlighting aspects such as nurse-patient interactions, work dissatisfaction, demands for attention, perceptions of a hectic work environment, and concerns about nurse well-being.Defining Phase. Transitioning into the "defining" phase, the research team crafted empathy maps, delved into the customer's point of view, utilized mind mapping, and formulated innovative solutions. The meticulous use of tools, including the "Look at your service through the eyes of a client," revealed a gamut of challenges: incomplete documentation, patient queues, limited leisure options, nurse training needs, inconvenient patient routines, desires for a smoking area, and a cafeteria within the hospital premises [Table 1]. Additionally, patient grievances regarding pre-hospitalization processes and menu monotony were uncovered.

Developing Phase. The multiprofessional team, featuring the clinic director and chief nurses, collaborated during the "development" phase to create customer profiles, person

Table 1: Identified themes of the defined challenges

Themes	Subthemes	Statements
Challenges before the hospitalization	incomplete documentation	"It seemed to me that the list of documents for the hospital was not collected or there were errors, because of this I was worried. I heard that people did not have all the tests and were sent back home. And they had to come a second time with documents and tests." Patient 3
	patient queues	"Waiting in those long lines at the hospital is frustrating. It seems like I spend more time waiting than getting the care I need." Patient 11
Disadvantages of hospitalization in the clinic	limited leisure options	"During my time in the hospital, there's not much to do for leisure." Patient 2
		"Our patients go for procedures in the morning and then are mostly free. They mostly communicate with each other. Time allocated for walking, two hours in the evening" Nurse 3
	inconvenient patient routines	"The daily routine is not very convenient for patients; they complain about the lack of time to meet with relatives." Nurse 5
		"We need more flexibility in our daily routine." Patient 9
Suggestions for the improvement of satisfaction	desires for a smoking area	"Patients were reprimanded for smoking in toilets. This issue needs to be resolved." Nurse 4
		"Our patients are mostly men who have worked in mines all their lives and the smoking ban does not apply to them, so, if possible, we need to organize a separate smoking area" Nurse 1
	nurse training needs	"I noticed that some nurses could speak in a raised voice due to workload. I believe that additional training will improve their communication skills." Patient 7
	a cafeteria within the hospital premises	"The food portions are small." Patient 1
		"I get tired of eating the same thing, I want a variety of menus or the opportunity to buy food myself." Patient 3
		"Many of our patients do not fill full for food and run to the store outside. What contributes to violation of internal regulations" Nurse 2

templates, and innovative solutions. An exemplary initiative was the initiative-taking approach to alleviate the prolonged wait for medical documentation. Monthly reminders to referring polyclinics and the introduction of a "reading corner" with books and board games during medical tests were implemented. Recognizing the patients' long smoking history, a dedicated smoking area was established, aligning with a change in "quiet time" to allow for self-spending during lunchtime naps.

Delivery Phase. Before the implementation of the defined solutions and after a 3-month period, a robust assessment of patient satisfaction was conducted. A standardized questionnaire, aligned with Kazakhstan's departmental information systems, garnered feedback from 15 patients, predominantly aged 40–60.[22] The results of the first feedback survey before the start of implementation of the service design were given by 86.7% of the surveyed patients as 4 points, while 13.3% gave 3 points out of a possible 5. After all stages of the service design, a re-evaluation of patient satisfaction was conducted. Notable improvements were reported, including reduced waiting times, enhanced satisfaction with laboratory services, reception rooms, appointment organization. The overall quality of medical service received garnered an impressive average rating of 5 out of 5.

Oral feedback collected from patients highlighted improved leisure time through board games and books, increased outdoor activities due to a revamped daily routine, and the establishment of a dedicated smoking area in response to patient requests. Importantly, the level of patient satisfaction witnessed a tangible increase post-implementation. While the number of bed days remained unchanged, a noteworthy reduction in conflict situations related to queues and documentation was observed. The nurses themselves acknowledged a decrease in conflict situations associated with waiting and being in the clinic following the implemented changes.

Eight pragmatic solutions were proposed, with the first addressing discrepancies in document collection before hospitalization. Recommendations included email reminders to pathologists and general practitioners and registry reminders for necessary documents. The introduction of patient-centric time utilization choices, such as reading corners and board games, sought to address waiting time concerns.

The elimination of the traditional "quiet hour" and the designation of smoking areas aimed at meeting the preferences of the male patient demographic, aged 40 to 60, with occupational diseases. These adjustments aimed not only to improve patient satisfaction but also to foster a more positive relationship between medical staff and patients.

Discussion

This qualitative study explored patient perspectives of unmet needs at the Occupational Health Clinic in Kazakhstan. Most of the participants had experiences with some challenges such as incomplete documentation in pre-hospitalization stage, patient queues, limited leisure options, smoking area, and food service. This aligns with

the broader research that points out the challenges faced by patients in healthcare settings globally, particularly in China, Brazil, Germany, and Ethiopia.[24-27] In line with findings from Chinese healthcare settings, long waiting times and limited consultation time with doctors were identified as significant challenges in our study as well.[24] Such circumstances create a stressful environment for patients, impacting their overall satisfaction. Addressing these issues is crucial for enhancing patient-nurse-doctor communication, which is essential for effective medical care. Our findings also resonate with those from Brazil and the USA, where waiting times and environmental factors, as well as provided services, influence patient satisfaction.[25] This suggests that improving the overall patient experience involves not just focusing on medical care but also on the facilities and the service environment. Additionally, the study's results align with German research on breast cancer patients, which found that long perceived waiting times negatively affected patient satisfaction with treatment and the hospital.[26] These findings emphasize the need for efficient management of patient flow and appointment scheduling to minimize wait times and enhance patient satisfaction. Moreover, as well as in our research in Ethiopia, dissatisfaction with the flavor of hospital meals was a common concern among patients.[27] This supports our observation that patient satisfaction can be influenced by numerous factors, including hospital food services. Addressing these concerns by offering more palatable meal options could enhance the overall patient experience.

In addition, our research revealed that the introduction of additional services, such as a reading corner and the installation of board games, increased patient satisfaction. Regarding additional services, a study by Stoumpos *et al*. (2023)[28] noted that information technology improves the quality of services, reduces costs, and helps improve patient satisfaction. As was revealed in our study, patients complained about the lack of opportunity to smoke during their stay in the hospital, which significantly reduced satisfaction with the services provided. Since the fact that the patients of the clinic were long-term smokers with a difficult profession, a smoking ban was not possible, and places were set. These results correlate with findings from a study in Poland, where despite a strict national ban on smoking in public places, the approach in some health departments differs. According to Chawłowska *et al*. (2022),[29] this ban has difficulties due to the relative impossibility of full compliance with the ban due to the dependence of patients on smoking. The smoking ban was perceived by most staff as impractical, and there were concerns that patients with tobacco dependence would still smoke, thereby creating a safety risk. This led to the liberalization of legislation, and since 2016, it has become possible to equip closed smoking rooms in psychiatric departments.

The study's multidisciplinary and collaborative approach proved instrumental in developing comprehensive solutions tailored to patient needs. By actively involving stakeholders such as patients and healthcare professionals, we could identify specific challenges and generate targeted interventions. The use of the service design toolkit enabled the visualization and enhancement of nursing service delivery, leading to the identification of unmet needs and the development of practical solutions. This structured approach contributed to the overall success of the project.

The study's limitations include the cultural adaptation of tools to the context of Kazakhstan, potentially limiting the transferability of findings to other settings. The focus on a specific department and patient group also limits the generalizability of the results. Additionally, the small sample size characteristic of a pilot study suggests the need for further research with larger samples and more diverse settings. By acknowledging these limitations, we provide a foundation for targeted exploration and refinement in future research. Despite these challenges, our study sets the stage for continuous improvement in patient satisfaction and operational excellence at the clinic.

Conclusion

In summary, the service design project has proven to be both effective and budget-friendly for the clinic. This unique initiative brought together experts from different fields and the users of the service, resulting in increased patient satisfaction. The project not only addressed current challenges but also unveiled areas for further investigation.

The study concludes by outlining plans for a comprehensive evaluation of the implemented service path to assess its impact on patient satisfaction. Anticipated outcomes include an enhanced patient experience, improved professional relationships between medical staff and patients, and a potential blueprint for patient-centered care in similar healthcare contexts.

To further sustainability, future research could focus on examining the long-term sustainability and scalability of these interventions, exploring their applicability across different healthcare settings, and identifying additional patient-centered strategies that improve patient satisfaction.

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Conflicts of interest

Nothing to declare.

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