

Patterns of Patient Attendance in an Old Dhaka City Sonologist's Chamber: A Cross-Sectional Study in Bangladesh

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Abstract:- This study extensively explores the socio-demographic traits, frequency of ultrasound usage, motives prompting ultrasonography, reported signs and symptoms, supplementary diagnostic assessments, and consequential observations among 403 participants. The majority of participants, constituting 91%, were female, predominantly falling within the 18-35 age bracket (87%), with a notable percentage engaged in daily wage occupations (41%). Educational diversity was evident, notably with 28% lacking formal education, while monthly incomes predominantly ranged from 15,000 to 35,000 units.

Reported symptoms during ultrasonography encompassed sluggishness, urinary irregularities, changes in urine color, fever, and vomiting. Pregnancy-related symptoms such as morning sickness, bleeding, and abdominal pain were also documented. A significant majority (81%) underwent supplementary tests beyond ultrasonography, primarily blood and urine analyses.

Regarding ultrasonography, 35% had undergone it more than three times before the study, and 45% experienced it once during pregnancy. The combination of whole abdomen and pregnancy ultrasound was prevalent in prior examinations (46%). Participants cited various reasons for seeking ultrasonography, encompassing missed periods, abdominal discomfort, bleeding, and concerns related to pregnancy. The outcomes derived from ultrasonography exhibited diversity, with 12% displaying normal results. Detected conditions included complicated pregnancies, fatty liver, gallstones, and kidney stones. The majority of pregnant participants were observed to be in the 11-16 weeks' gestational range.

45% fell within the 18-26 age range, encountering problems like missed periods with frequent urination and fatigue (34%). Moreover, 51% had a monthly income of 15,000 units, signalling a considerable lack of

awareness about their physical health and malnutrition linked to low income.

Education and income emerged as key factors influencing the participants' access to healthcare, notably ultrasonography. The majority had limited education, and a significant number had low monthly incomes, restricting their ability to afford necessary medical tests, including ultrasonography. Consequently, financial constraints significantly impacted their health-seeking behavior and limited access to essential healthcare services.

It illuminates prevalent health concerns within the studied population, providing valuable insights into their health landscape.

Keywords:- Patient Attendance, Sonologist's Chamber, Cross-Sectional Study, Bangladesh.

I. INTRODUCTION

Ultrasonography stands as a recent addition to our diagnostic arsenal, serving as a valuable tool for medical assessments.¹The World Health Organization (WHO, 1985) has endorsed the use of ultrasonography in developing nations due to its immediate imaging capabilities, cost-effectiveness, outpatient suitability, and absence of adverse effects.² Over the last decade, there has been a rise in the utilization of ultrasound technology among non-radiologist physicians.³

Medical diagnostics, especially through ultrasonography, serves as a critical component in assessing and managing various health conditions, especially during pregnancy. The multifaceted aspects of this diagnostic tool are revealed through an extensive study encompassing socio-demographic characteristics, frequency, causes, symptoms, additional tests conducted, and the resultant findings among participants.

The bustling streets of Old Dhaka, amidst their historical allure, conceal a tapestry of health concerns that beckon attention. Amidst this vibrant cityscape, the corridors of a Sonologist's chamber serve as a critical juncture where the convergence of medical diagnostics and community health unfolds. In the heart of Bangladesh's capital, Dhaka, this cross-sectional study aims to illuminate the intricate pattern of cases presenting themselves within the domain of a Sonologist's practice, offering invaluable insights into the health landscape of this bustling urban enclave.

Situated within the labyrinthine alleyways and vibrant markets of Old Dhaka, the Sonologist's chamber emerges as a pivotal node in the healthcare network. This study delves into the multifaceted tapestry of cases attending this specialized medical hub, unraveling a comprehensive panorama of prevalent health issues, diagnostic trends, and demographic nuances that permeate this historic locale.

Dhaka, as the epicenter of Bangladesh's economic and cultural fabric, harbors within its folds a diverse populace navigating the juxtaposition of tradition and modernity. The city's pulsating rhythm resonates through its narrow thoroughfares, where age-old traditions coexist with the burgeoning demands of a rapidly evolving society. Within this dynamic milieu, health remains a paramount concern, and the Sonologist's chamber stands as a sentinel, bearing witness to the health narratives etched into the lives of Dhaka's denizens.

The significance of this study lies not only in its exploration of cases attended to within the Sonologist's purview but also in its broader implications for public health initiatives in Bangladesh. Old Dhaka, steeped in history and heritage, serves as a microcosm, encapsulating myriad health challenges reflective of urban centers grappling with an amalgamation of lifestyle transitions, environmental dynamics, and socio-economic diversities.

The spatial domain of Old Dhaka, characterized by its labyrinthine streets and densely populated neighbourhoods, forms the backdrop against which this study unfolds. It is within these winding alleys and vibrant marketplaces that individuals, representing diverse socio-economic strata, converge upon the Sonologist's chamber seeking diagnostic elucidation and medical guidance.

The Sonologist's chamber, a haven nestled amidst the vivacity of Old Dhaka, serves as more than a mere medical facility; it stands as a custodian of health narratives interwoven within the fabric of the city's existence. Within its walls, a myriad of health concerns manifest, reflecting the intricate tapestry of challenges faced by residents encompassing a spectrum of ages, occupations, and lifestyles.

As Bangladesh surges forward in its developmental trajectory, grappling with the intricacies of urbanization and societal transformation, the health landscape mirrors this evolution. Understanding the intricate patterns of cases

attending the Sonologist's chamber becomes imperative in delineating not just the prevailing health concerns but also in formulating targeted interventions and healthcare policies addressing the specific needs of this vibrant and dynamic community.

This cross-sectional study endeavours to dissect the patterns of cases attending the Sonologist's chamber, encompassing a comprehensive analysis of demographic parameters, prevalent health issues, diagnostic trends, and their implications for public health strategies. Through meticulous scrutiny and analysis, it aims to shed light on the health narratives etched within the corridors of this vital healthcare hub, offering invaluable insights into the health dynamics of Old Dhaka and, by extension, urban centre's grappling with similar socio-medical complexities.

As the wheels of time turn within Old Dhaka's bustling streets, this study embarks on a journey to unravel the enigmatic tapestry of health, aiming to decipher the patterns, nuances, and challenges that define the healthcare landscape within the realm of the Sonologist's chamber.

➤ Objectives

- To determine the socio demographic characteristics of respondents.
- To identify pattern of cases according to age group.
- To find out the common clinical sign, symptoms and causes of attending the sonologist.
- To determine the proportion of pregnant mothers among the attending cases.

II. METHODOLOGY

➤ Study Design

The present study is a cross sectional survey conducted in a Sonologist chamber of old Dhaka city following quantitative approaches.

➤ Study Period

Total duration for the study is 24 weeks. Of these, data collection was carried out for 10 weeks, data analysis was carried out 6 weeks, data interpretation 3 weeks, report writing 3 weeks and 2 weeks for report submission subsequently.

➤ Study Area

The study was carried out in a SONOLOGIST's chamber of old Dhaka city, Bangladesh.

➤ Study Population

The study was compromised of both (male and female) patients from Old Dhaka City who come to the SONOLOGIST's chamber. All the patient's attending at the chamber of selected Sonologist was interviewed until we obtain the desire number.

➤ Sample Size Estimation

Sample Size was calculated using following formula:

- $n = z^2 pq/d^2$
- Where,
- n = desired sample size
- $z = 1.96$ (95% confidence interval)
- p = Prevalence of Ultrasonography= 0.5 unknown
- $q = 1-p = 1-0.50 = 0.50$
- $d = 5\%$
- So, $n = (1.96)^2 (0.50 \times 0.50) / (0.05)^2 = 384$
- Considerably 5% non-responded = $384 + 19 = 403$

A total of 403 respondents (patient or their attendants if the patient is minor or unable to respond due to age related problems such as too old/too immature age.)

➤ *Data Collection Instrument*

A set of Questionaries was developed to achieve the objective of the study and the Questionaries were prepared in Bangla which was translated into English. For validity of translation, English translation copy was translated into Bangla. Then it was field tested in the chamber of another Sonologist and was finalize after incorporation of the observations.

The questionnaire was formed to collect and evaluate the socio-demographic characteristics, frequency of ultrasonography, causes and sign. Symptoms reported by patients during ultrasonography as well as patients’ various perception experienced during ultrasonography. Besides, the clinical result and finding of ultrasonography along with other test done by patents collected through questionnaire.

➤ *Data Collection Method*

In the sonologist's office, the GE Logiq V5 expert ultrasound machine, equipped with four probes, primarily utilized the linear and curved linear probes for conducting the specified examinations.⁴

Furthermore, all the cases who came in a Sonologist chamber was interviewed during the study period. Data was collected by face-to-face interview during attending the patient at the chamber of a SONOLOGIST using a set of pre-tested Questionaries.

➤ *Data Analysis*

All the data were summarized and coded numerically. Collection of data were scrutinized and incorrect data were rejected before it was entered into the computer soft-ware. The data underwent analysis through the SPSS (Statistical Package for Social Science) software on Windows. Descriptive statistics was used for further analysis and the results was presented in the forms of tables.

➤ *Ethical Issues*

Ethical clearance was collected from respective authority before we start data collection. Both verbal and written consent form was collected from patients; before we start interviewing and the issue of informed consent was strictly followed. The participants were explained in details the nature of the study.

III. RESULT

Table 1 Socio-Demographic Characteristics

Demographic Characteristics	Number	Percent %
A. Gender		
Female	365	90.6
Male	38	9.4
Total	403	100.0
B. Age		
18-26 Years	184	45.6
27-35 Years	169	42
36- 44	35	8.7
45 and above	15	3.7
Total	403	100.0
C. Husband/Own occupation (of male)		
Worker	165	40.9
Service Holder	47	11.7
Shopkeepers	73	18.1
Salesman	69	17.1
Others	49	12.2
Total	403	100.0
D. Education Level		
Primary education	94	23.3
Junior Secondary education	78	19.4
Secondary Education	105	26.1
Higher Secondary Education	12	3.0
No education	114	28.3
Total	403	100.0
E. Family Member		

Below or equal 4	367	91.1
Above 4	36	8.9
Total	403	100.0
F. Family Income		
Less or equal 15000 /	205	50.9
16000-25000 /	115	28.6
26000-35000 /	83	20.6
Total	403	100.0

Table 1 presents the demographic details of 403 participants, with 91% being females. Among them, 45% were aged 18-26, 42% were 27-35 years old, and a small percentage fell into older age brackets. The majority (41%) were engaged in daily wage jobs, while educational backgrounds varied, with 28% having no formal education. Notably, 91% reported having families of four or fewer members, and 51% earned a monthly income of 15,000 units.

Table 2 Frequency and Kind of Ultrasonography

A. Numbers of ultrasonography done before	Number	Percent %
One time	113	28.0
Two time	146	36.2
Three time and above	144	35.7
Total	403	100.0
B. Number of Ultrasonography done among participants who have previously done Ultrasonography during their pregnancy		
One time	182	45.2
Two time	134	33.3
Three time and above	17	4.2
Total	330	82.7
C. Kind of ultrasonography done before		
Whole abdomen+ Pregnancy	186	46.1
Whole abdomen (only)	110	27.3
Pregnancy (only)	94	23.3
Pregnancy+ TVS	11	2.7
Breast ultra sound+ Pregnancy	2	0.5
Total	403	100.0

The table 2 indicates participants' ultrasonography patterns. Before the study, sessions were frequent: 35% had more than three, 36% had two, and 28% had one session. During pregnancy, 45% had one session, 33% had two, and 4% had more than three. Notably, 17% had no scans. Types of scans varied: 46% had whole abdomen + pregnancy scans, 27% had only whole abdomen, 23% had pregnancy-only scans, 2.7% had pregnancy + TVS, and 0.5% had breast ultrasound + pregnancy scans.

Table 3 Causes of Ultrasonography

	Number	Percent %
Missed period with frequent urination+ Fatigue	139	34.5
Bleeding during pregnancy	20	5.0
Pain in the abdomen	51	12.7
Abdominal pain in the upper right side of abdomen	40	9.9
Pain in the upper abdomen	25	6.2
Sudden nausea, vomiting with abdominal pain	11	2.7
Swelling in the abdomen	9	2.2
Increase frequency of urination	32	7.9
Continuous Bleeding For 2 weeks	33	8.2
Pain in the lower abdomen	24	6.0
Irregular menstruation bleeding + weight gain	15	3.7
Marvel moving under the skin of breast	2	0.5
Pain, swelling and nipple discharge from breast	2	0.5
Total	403	100.0

Table 03 elucidates the participants underwent ultrasonography for various reasons: missed periods with frequent urination and fatigue (34%), abdominal pain (12%), upper right abdominal pain (10%), continuous two-week bleeding (8%), increased urination frequency (8%), upper and lower abdomen pain (6% each), bleeding during pregnancy (5%), irregular menstruation with

weight gain (3.7%), sudden nausea, vomiting with abdominal pain (3%), abdominal swelling (2.2%), and breast pain, swelling, and nipple discharge (1%).

Table 4 Sign/Symptoms that Lead for doing Ultrasonography (Multiple Response)

	Number	Percent
A. Feeling Sluggish	40	9.9
B. Difficulty in Urinating	32	7.9
C. Change in the color of urine	32	7.9
D. Frequent urination	32	7.9
E. Itching	32	7.9
F. Fever	32	7.9
G. Vomiting	159	39.5
H. Headache	141	35.0
I. Menstruation	159	39.5
J. Other sign/symptoms		
Morning sickness + Headache	141	35.0
Bleeding During Pregnancy	18	4.5
Loss of appetite	76	18.9
Weight gain	24	6.0
Pain in the lower abdomen	56	13.9
continuous bleeding for 2 weeks	33	8.2
Usually painless	2	0.5
Redness in the part of breast	2	0.5
No symptoms	51	12.7
Total	1062	264.0

Table 4 details during ultrasonography, symptoms reported included sluggishness (10%), difficulty urinating, change in urine color, frequent urination, itching, and fever (each 8%), along with vomiting (39%) and headache (35%). Additionally, irregular (40%) and prolonged periods (12%) were noted, with 48% offering no comments. Other symptoms included morning sickness with headaches (35%), bleeding during pregnancy (4.5%), loss of appetite (19%), weight gain (6%), lower abdominal pain (14%), continuous two-week bleeding (8%), and redness in breast tissue (0.5%). Moreover, 12% reported no other pregnancy-related signs or symptoms.

Table 5 Conducting Other test before coming to Ultrasonography

	Number	Percent
Yes	326	80.9
No	77	19.1
Total	403	100.0
If yes		
Blood Test	267	66.3
Urine Test	241	59.8
HbsAg	11	2.7
Total	403	100

Table 5 indicates that apart from ultrasonography, 81% of participants underwent other tests. These included blood tests (66%), urine tests (60%), and HbsAg tests (2.7%).

Table 6 Result and Findings of Ultrasonography

Result	Findings of the Ultrasonography test	Number	Percent
Normal Ultrasonography	Normal	51	12.7
Normal Pregnancy according to gestational ages of pregnant mother	5 to 10 weeks	17	4.1
	11 to 16 weeks	37	9.2
	17 to 22 weeks	10	2.4
	23 to 28 weeks	26	6.4
	29 to 34 weeks	33	7.9
	Above 34 weeks	16	3.9
Complicated Pregnancy	Placenta previa	20	5.0
Fatty liver	Increase echoes of hepatic parenchyma	40	9.9
Gall Stone	Posterior acoustic shadow from gall bladder	25	6.2

Acute Hepatitis	Decrease echogenicity/brightness of liver	11	2.7
Aseities	Fluid accumulation in abdominal cavity	9	2.2
Cystitis	increase thickness of urinary bladder wall	32	7.9
Incomplete abortion	product of conception present	33	8.2
Kidney stone	acoustic shadow from definite kidney	24	6.0
PCOS	multiple follicles within ovary	15	3.7
Fibroadenoma	A hypoechoic solid mass with well circumscribed border present in breast tissue	2	0.5
Breast Abscess	An ill-defined mass with central hypoechoic area within the breast tissue	2	0.5
Total		403	100.0

Table 6 presents the ultrasonography findings revealed 12% normal reports. However, 34% showed pregnancy-related observations, including complications like placenta previa (5%), fatty liver (10%), gallstones (6%), acute hepatitis (2.7%), ascites (2.2%), cystitis (8%), incomplete abortions (8%), kidney stones (6%), PCOS (3.7%), fibroadenoma (0.5%), and breast abscess (0.5%). Among pregnant participants, 9.2% were in the 11-16 week bracket, 8% in the 29-34 week range, 6.4% in the 23-28 week range, 4.1% in the 5-10 week range, 2.4% in the 17-22 week range, and 4% were over 34 weeks pregnant.

Table 7 Distribution of Respondents According to their Opinion about the Ultrasonography Procedure used

	Number	Percent
A. List of variables come to ultrasonography voluntarily		
Yes	403	100.0
No	0	0
B. Ultrasonography test is useful		
Yes	403	100.0
No	0	0
C. Any Difficulties while lying face-up position during Ultrasonography		
Yes	0	0
No	403	100.0
D. Any pain/discomfort against the pressure of transducer during Ultrasonography		
Yes	0	0
No	403	100.0
E. Any problem to complete normal daily activities		
Yes	0	0
No	403	100.0
F. Opportunity to ask any questions to sonologist		
Yes	403	100.0
No	0	0
G. Is your privacy maintained		
Yes	403	100.0
No	0	0
H. Any treatment after ultrasonography		
Yes	0	0
No	403	100.0
I. Any advice after ultrasonography		
Yes	49	12.2
No	354	87.8
Total	403	100.0

Table 7 illustrates that all participants voluntarily underwent ultrasound and found it beneficial. None experienced discomfort lying face-up or during the procedure. They reported no hindrance in daily activities, maintaining privacy and interacting with the sonologist. No participants received treatment post-ultrasound, with only 12% given advice afterward.

IV. DISCUSSION

Due to the unreliability of clinical signs and symptoms, ultrasound becomes crucial in diagnosing it.⁵ The socio-demographic characteristics of the participants in this study offer valuable insights into the profile of individuals seeking ultrasonography. The predominance of female participants, accounting for 91% of the total, aligns with the common use of ultrasonography in gynaecological and obstetric examinations. It is notable that a significant portion of participants belonged to the younger age groups, primarily within 18-35 years. This demographic distribution could indicate a greater proclivity among younger individuals to seek medical examinations such as ultrasonography.

Another noteworthy finding was the diverse occupational backgrounds among the participants, with daily wage workers comprising the largest group at 41%. This reflects the accessibility and necessity of healthcare services across varied socioeconomic strata, highlighting the widespread use of ultrasonography across different occupational groups.

Education levels also varied significantly, with a considerable portion lacking formal education (28%) and only a small percentage having completed higher secondary education (3%). This diversity in educational backgrounds might influence health-seeking behaviors and the understanding of medical procedures, impacting the participants' motivations for seeking ultrasonography. Family size and income distribution further characterize the socio-economic status of the participants. A majority reported smaller family sizes (91% with four or fewer members), while monthly incomes predominantly ranged between 15,000 to 35,000 units. These socio-economic indicators could play a role in determining access to healthcare services and the frequency of medical examinations such as ultrasonography.

The frequency and type of ultrasonography conducted before and during pregnancy reveal interesting patterns. A considerable number of participants underwent multiple ultrasonography sessions before the study, with a significant proportion (17%) having not undergone ultrasonography at all. Differences in usage can be affected by factors like accessibility, awareness, and personal health considerations. Reasons prompting participants to undergo ultrasonography encompassed a wide spectrum of health issues, notably including missed periods with associated symptoms, abdominal pain, bleeding, and pregnancy-related concerns. The reported signs and symptoms during ultrasonography sessions included a range of issues from common conditions like irregular periods and morning sickness to more concerning symptoms such as continuous bleeding for two weeks and abdominal pain, underscoring the diversity and complexity of health conditions experienced by the participants.

Moreover, the study revealed that a majority of participants (81%) underwent additional tests beyond ultrasonography, predominantly blood tests (66%) and urine

tests (60%). This comprehensive approach to health monitoring suggests a multi-faceted diagnostic strategy adopted alongside ultrasonography, emphasizing the importance of a holistic assessment in clinical settings.⁶

The findings from the ultrasonography reports demonstrated a range of outcomes, including normal results (12%) and various pregnancy-related complications such as placenta previa, fatty liver, gallstones, and kidney stones. The distribution of pregnancy stages among participants, particularly the concentration between 11 to 34 weeks, underscores the critical role of ultrasonography in monitoring and identifying gestational complications across different trimesters.

In conclusion, the study's findings shed light on the diverse demographic profiles, reasons for undergoing ultrasonography, associated symptoms, additional tests conducted, and the wide array of findings yielded by ultrasonography, particularly concerning pregnancy-related conditions. These insights underscore the need for accessible and comprehensive healthcare services to address the varied health concerns observed among the studied population.

V. CONCLUSION

To sum up, ultrasound represents one of the newest advancements offered to both doctors and patients by contemporary scientific advancements.⁷ Emergency doctors ought to contemplate employing ultrasound for urgent assessments of expectant patients who cannot provide their medical history.⁸

Within this comprehensive study encompassing 403 participants, a thorough analysis was conducted across socio-demographic parameters, ultrasonography usage patterns, reasons prompting scans, reported symptoms, additional diagnostic tests performed, and the findings derived from ultrasound examinations. The study cohort primarily comprised females (91%), spanning diverse age groups, with a predominant presence within the 18-35 years bracket. Occupational diversity was evident, encompassing daily wage workers, shopkeepers, salespersons, and service holders.

The utilization of ultrasonography revealed distinct trends, indicating frequent scans conducted before the study period and varying frequencies during pregnancy. Motivations for undergoing scans encompassed a wide spectrum, ranging from missed periods to abdominal discomfort, signaling a diverse array of health concerns among the participants. Reported symptoms during scans encompassed irregular menstrual cycles and pregnancy-related complications such as bleeding and abdominal pain. Moreover, a majority of participants underwent concurrent diagnostic tests, notably blood and urine analyses, alongside ultrasonography.

In findings, the study underscores the socio-economic barriers influencing access to healthcare, particularly in availing essential diagnostic procedures like

ultrasonography. Low education levels, coupled with limited income, significantly impact the health-seeking behaviors of individuals, hindering their ability to access necessary medical tests. While participants exhibited satisfaction with the procedure, the lack of comprehensive post-diagnostic care presents a significant area for improvement in healthcare delivery.

FURTHER RECOMMENDATION

- Improve accessibility and affordability of prenatal care, ensuring regular and timely ultrasound screenings during pregnancy.
- Enhance healthcare education to increase awareness about symptoms warranting ultrasound examinations.
- Expand healthcare services to rural areas, focusing on comprehensive diagnostic tests beyond ultrasonography.
- Train healthcare professionals to provide post-diagnostic guidance effectively.

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