Radiologist, Ultrasound and Health of Women
(A Sociological Evaluation)

Seema Kumari Yadav*



Motive- In this article I have tried to clear the difference between radiologist and radiographer which are used as synonyms by common people thereafter its meaning and uses of ultrasound/sonogram in terms of women health at the end ,tried to clear that whether it is a boon or bane for our society .As we all know that everything has two aspects first positive and second negative this technology has too but the importance of this technique can't be denied because it has helped a lot to all patient but here I will discuss this technology in terms of women health because this article is dedicated to women health that is one of the most important aspect of health .

I hope this article will provide clear concept to the readers about the work of radiographers and radiologist ,use of ultrasound and its usefulness in terms of women health specially when they are pregnant but it is not that this technology is only for pregnant women it is useful for all. As it is a sociological study so I have tried to show its utility along with its misuse.

One important thing that I like to mention here that made me to think about this topic is a Radiologist whom I met a couple of months back and importance of his work caught my attention.

Method- This article is based on secondary source. I have collected materials for this article through extensive reading.

A radiographer (medical imaging technologist) is a university-trained health professional who works with cutting edge technology to produce X-rays, CT (computed tomography) scans, MRI (magnetic resonance imaging) scans and other medical images to assist clinical radiologists and other doctors diagnose, monitor or treat a patient's injury or illness.

Radiographers have a very thorough understanding of the body's structure, how it is affected by injury, and the causes and effects of disease.The radiographer performs the medical imaging on the instructions of the radiologist. The radiologist then interprets the images the radiographer has taken .Medical imaging involves various types of diagnostic procedures and tests, such as CT scans, ultrasounds and nuclear medicine scans. Imaging procedures are used to create pictures of the tissues, organs and bones in the body.

By viewing an image, doctors can diagnose medical conditions and injuries, such as cancer, fractures and blood clots. Imaging scans can also play an important role in helping physicians monitor how a patient is responding to treatment.

Although radiologists and radiographers each have a role in the use of medical imaging procedures, their responsibilities, training and opportunities are different. One big difference is

* (JRF), Research Scholar, Sociology Department, Ranchi University, Ranchi

the amount of education and the length of training it takes to work in each of the professions. To decide if either profession is right for you, it's helpful to learn more about each.

In short ,. Radiologists usually do not perform the imaging tests. Instead, they consults to the referring doctor.

Let's know about the use of Ultrasound (also known as sonogram)for pregnant woman .It is a prenatal test offered to most pregnant women. It uses sound waves to show a picture of your baby in the uterus (womb). Most women get an ultrasound in their second trimester at 16 to 20 weeks of pregnancy. The baby can be measured as early as 5 or 6 weeks after the mother's last menstrual period. Measuring the baby using ultrasound is most accurate in early pregnancy. It becomes less accurate later in pregnancy. The best time to estimate gestational age using ultrasound is between the 8th and 18th weeks of pregnancy.

An ultrasound is a painless diagnostic test that relies on sound waves, and most women will have at least one during pregnancy. Fetal imaging is one of the most common uses of ultrasounds; this diagnostic tool actually has many applications.

Here a question arises that How does it work? Ultrasound, also called sonography, uses sound waves to develop ultrasound images of what's going on inside the body. An instrument called a transducer emits high-frequency sound, inaudible to human ears, and then records the echoes as the sound waves bounce back to determine the size, shape, and consistency of soft tissues and organs. For example, if abdomen is being scanned, you may need to restrict what you eat and drink before the procedure. If pelvis is being scanned, you maybe suggested to drink several glasses of water beforehand so that your bladder is full, which provides better ultrasound images. For all ultrasound procedures, you will be asked to remove all jewelry from the area of your body that will be scanned.

Ultrasound may be done in a doctor's office, in a special hospital suite, or at the bedside in the hospital with a portable machine. When one arrive for test, he/she will be asked to remove all clothing and jewelry from the area being scanned, will be given a hospital gown, and will be asked to sit or lie down on an examination table.

A small amount of gel will be applied on the skin over the area to be scanned to help the sound waves move into your body. The doctor or ultrasound technician will slide the small ultrasound instrument back and forth through this gel. The ultrasound instrument, also called a transducer, will transmit ultrasound waves into your body and receive their reflected echoes. This is a painless procedure. One will only feel the instrument against skin. Reflected sound waves received by the transducer are processed by a computer and will appear on a lighted screen in the ultrasound room. As the scan continues, one may be asked to hold your breath or change position to give the best image possible. After scan is done, the gel will be wiped off . After ultrasound scan, one usually can go back to normal diet and daily activities. Generally ,Ultrasound has no known risks but it may be risky if performed on a regular basis.

All pregnant women should have at least one scan in the first trimester but most get two. If there is a low-risk pregnancy, one may have four or five scans during your entire pregnancy. These routine scans usually are: Dating and viability scan between 6 and 9 weeks.

The misuse of ultrasound in India(2004)for sex determination, leading to female foeticide, has prompted a debate in the radiological community about who should be allowed to

perform ultrasound exams or restricting it to only radiologists and gynaecologists will help curb its illegal and wrongful use.

The Indian Radiological and Imaging Association (IRIA) is of the view that limiting ultrasound to radiologists and gynaecologists will reduce the misuse . But it has put a big question mark . Here question arises that can the misuse be stoped by limiting this technique to radiologist and gyneacologist ?

Ultrasound baby images are a great boon in the hands of experienced medical practitioner since he or she will be able to determine many things about the unborn child on the basis of this. This is a very useful method of finding out the health of the unborn child without resorting to invasive methods. The echoes of these sound waves are used to create a video or a photographic image. This method is used to create a very accurate picture of the child and also various other aspects of the pregnancy such as the amniotic sac and the placenta.

It is a very common practice for a pregnant woman to go in for regular ultrasounds in order to track the progress of the pregnancy and the healthy growth of her unborn child. These tests are a very accurate way of screening the child for birth defects and for predicting the weight of the child at the time of birth. This procedure is also used to do sex determination tests that indicate the gender of the unborn child with a fair degree of accuracy. The baby images obtained through an ultrasound test are so clear that the doctor can state the gender of the child with hardly any error. Under normal circumstances this is a very good thing since the happy parents will know what to expect. These tests are popular because they are believed to have no negative side effects on the unborn child if done on need. They are also relatively inexpensive to perform.

However, like most inventions of man, this one too can become dangerous when put in the wrong hands. There are many cultures where parents do not welcome a girl child due to various reasons which could be religious or cultural. In many developing countries, the girl child is considered to be a burden because she normally does not contribute economically to the family. It is a very common practice for prospective parents to go in for ultrasound sex determination tests just so that they can terminate the pregnancy if the baby images indicate that it is a girl.

This has become a problem of such gigantic proportions because the gender balance in these countries has become so skewed to the extent that there is a huge shortfall of adult women there. There are actually countries like India and China where it is difficult for men to find spouses in certain provinces or states. This leads to increased crimes against women in addition to all around dissatisfaction. As a result it has become illegal to conduct sex determination tests in some countries. This is a very good example of how people will subvert a wonderful new technology that should be used for the betterment of all. It will take tough legislation combined with changes in people's attitudes to make this problem go away..

As with all knowledge, ethical aspects have assumed an important criterion in the use and abuse of emerging technology. There have been regulatory procedures to limit the misuse of technology but rapid advances often make the regulatory process redundant.

It is therefore necessary to periodically review such regulations. One such technology that needs to be examined is ultrasound.

The value of ultrasonography in healthcare facilities weighs heavily on its multi-functionality. It produces live images of muscle and soft tissue, enabling doctors to select the most useful sections for diagnosing and documenting changes.It shows the structure and function of internal organs and is a useful way to examine the musculoskeletal system to detect problems with muscles, ligaments, and joints. It also assists in identifying blockages and other vascular abnormalities.

Ian Donald and colleagues at the Glasgow Royal Maternity Hospital in Scotland conducted the first diagnostic procedures using ultrasonography.

They applied these techniques to obstetrics to assess the growth of the fetus. As technical quality of scans further developed, it became possible to monitor pregnancy from start to finish and diagnose complications such as multiple pregnancy and fetal abnormalities.

In a country like India, where most of the population is still steeped in feudal mindsets, the obsession for a son has led to an adverse sex ratio and the situation has become alarming in some areas.

In Morena district of MP, the present child sex ratio stands at 837 (girls per 1,000 boys). To put an end to sex determination tests, the district authorities cancelled seven licenses of ultrasound clinics and nursing homes that were suspected of carrying out the practice of sex selective elimination.

But the order was set aside by state authorities and the clinics continued to function. Social activists then challenged the state's decision through public interest litigation (PIL) in the high court. The court stayed the state's move and re-imposed the ban, which was subsequently removed on the undertakings of the ultrasound centres and clinics.

The clinics, in their replies, highlighted the benefits of sonography and what a boon it has been to mankind.

The main argument put forward was that the petitioners might not know what ultrasound is and where it is used? They cited reports by the American Pregnancy Association and argued that ultrasound was indispensable for ascertaining congenital abnormalities and the health of the baby and the mother. They added that the petition deliberately emphasised only one aspect of ultrasonography - determination of foetal sex.

Puneet Bedi, a doctor at Apollo Hospital in New Delhi, said: "Ultrasound was invented in the 1950s for safe motherhood but it has not only killed millions of fetuses in India, it is also a leading cause of maternal mortality. Since millions of foeticides occur every year in India, thousands of doctors and nursing home owners are involved in it. The economics of the business, according to Bedi, is simple to understand.

Ultrasound has some negative effects too if used injudiciously. Coming to the cautionary warnings against ultrasound, a recent study by Pasko Rakic, chairman of the neurobiology department at Yale University School of Medicine says that exposure to ultrasound can affect foetal brain development. But it does not mean that the use of ultrasound on human foetuses for appropriate diagnostic and medical purposes be abandoned.

As far as safety aspects are concerned, the risks of ultrasound during pregnancy are not fully known.

Ultrasound has been possibly linked to miscarriages, lower birth weight, and pre-term labour. According to American Council of Gynaecologists, an ultrasound is not always accurate

and it does not recommend its routine use. "Ultrasound examination may disrupt normal brain development in unborn babies," says Helle Kieler of Karolinska Institute, Stockholm. The expert urges mothers to avoid unnecessary ultrasonic scans but not cancel routine examinations.

The World Health Organisation (WHO) too recommends prudence in ultrasound exposure to human subjects. The Gokhale Institute of Politics and Economics at Pune had published a study of ultrasound clinics in Maharashtra. It showed that knowledge, financial resources and access are three factors which, when they come together, enhance the possibility of sex determination techniques and sex selective elimination being practiced.The study's finding clearly indicates the strong correlation between availability of sonography centres and decline in child sex ratio during 1991-2001**.**

Demographer Ashish Bose had said: "The unholy alliance between tradition and technology of ultrasound has played havoc in Indian society."

The above facts call for a reconsideration of the regulatory mechanism connected with ultrasound technology. More stringent regulations and awareness efforts at social grassroots level are urgently needed.

Conclusion

Here we can conclude that this technology has helped pregnant women alongwith others,who get assured about the wellbeing of their up coming baby and lead a stress free life till the birth of their child but it exert harmfull effect also if performed so many times ,This ultrasound technique and radiologist are of immense importance because without giving pain to patient diagnose through different types of imaging, but it has been misused for sex determination also but at the right time act was formulated to stop the misuse of this technology ,to a great extent this technology has been misused due to son preference custom that we have been following for many years as Mr. Ashis Bosh tierd to say, whatsoever be the tradition governmet have made full effort to curb this illegal practice by banning nursing homes and doctors, caught performing this practice. Now the mentality of our society is being changed towards the difference between girl and boy child because both are moving ahead in a same manner to achive their goal and the patriarchal system has also being suppressed by us not compleately but efforts are being made and girls are proving themselves in all walks of life.

Keywords : Ultrasound, Radiologist ,pregnant women health, IRIA.

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