



Women in Medical Physics: Bangladesh

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Bangladesh :At a glance

- Bangladesh is an agrarian country.
 - It has a patriarchal society.
 - Population of about 160 million.
 - Numbers of male and female are 76.35 million
- Women represent around fifty percent of population.



Bangladesh Demographics Profile 2018

Literacy

definition: age 15 and over can read and write

total population: 72.8%

male: 75.6%

female: 69.9% (2016 est.)

School life expectancy (primary to tertiary education)

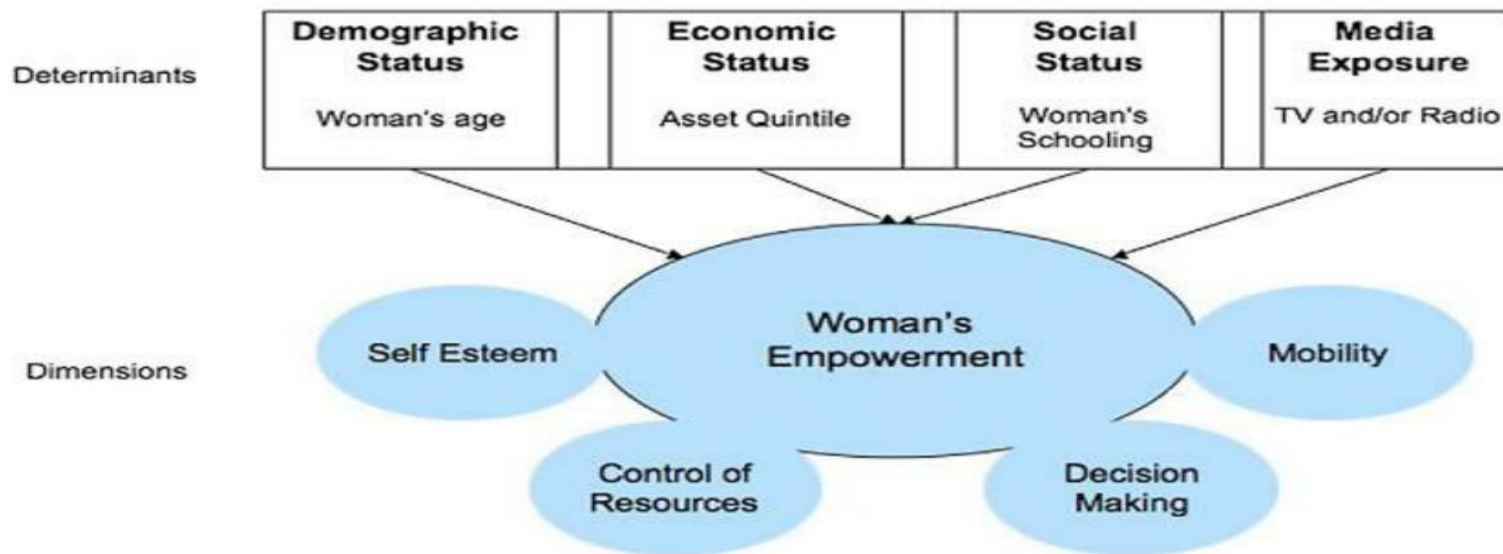
total: 10 years

male: 10 years

female: 10 years (2011)

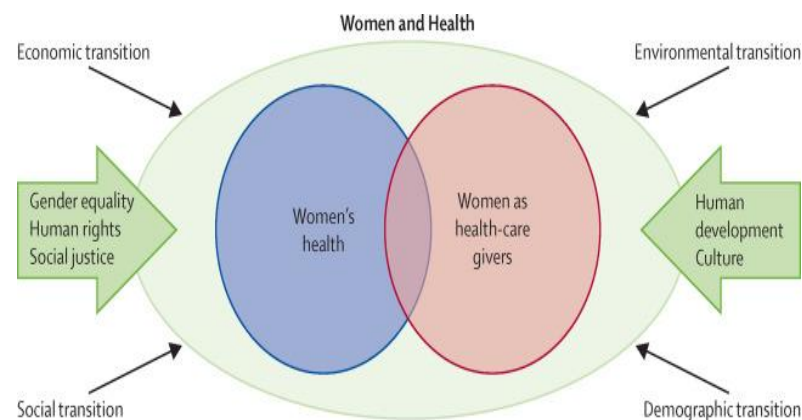
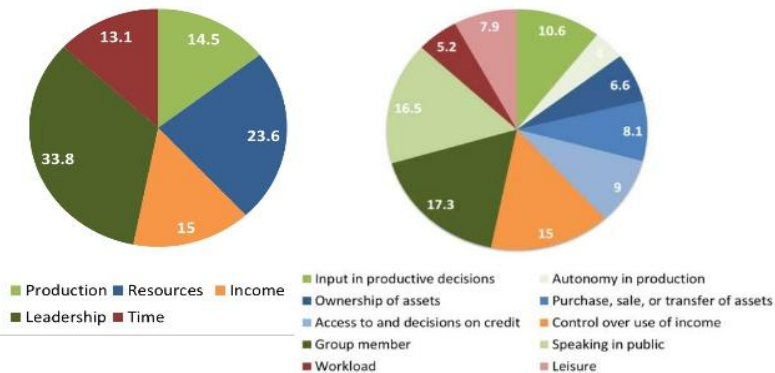


Factors related to Women Empowerment

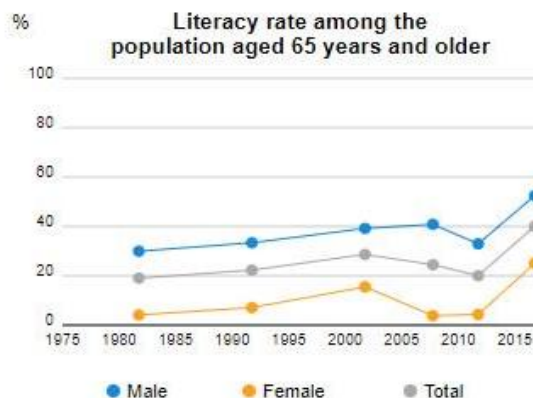
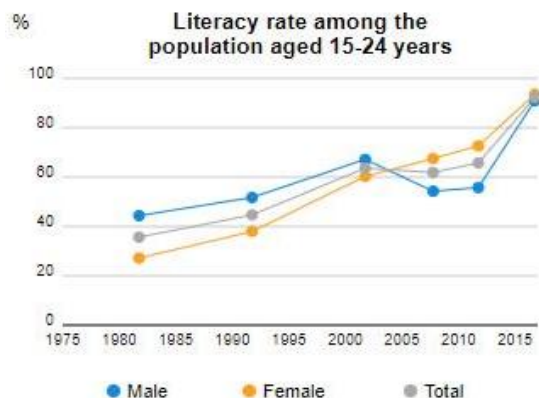
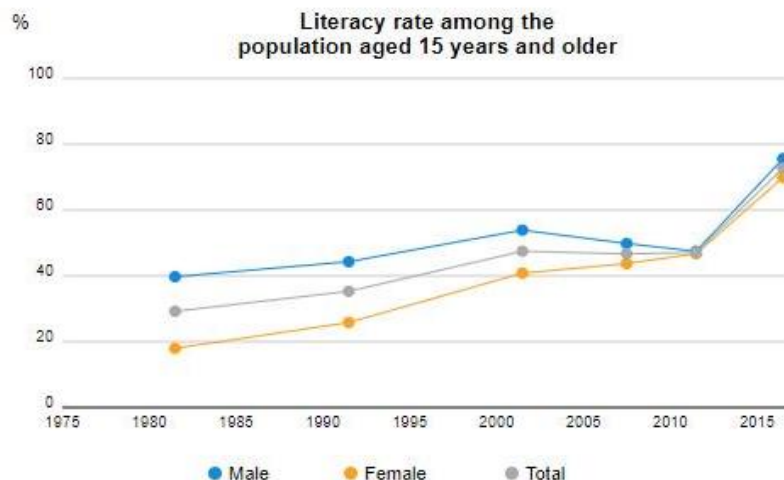


Bangladesh

% Contribution of domains & indicators to women's disempowerment



Literacy Rate Bangladesh



Literacy rate (%)	TOTAL	MALE	FEMALE	
15-24 years	92.24	90.91	93.54	(2016)
15 years and older	72.76	75.62	69.9	(2016)
65 years and older	40.05	52.44	25.02	(2016)

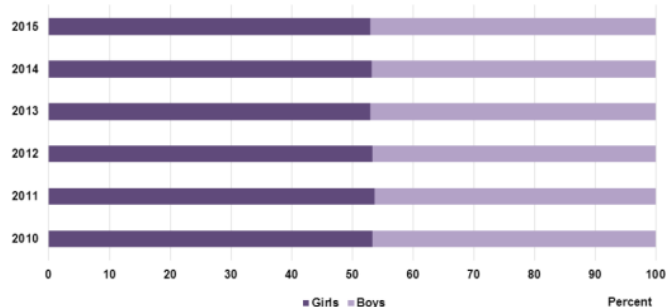


Gross and Net Enrollment Rate 2010-2015

Primary Education

Year	GER (%)		NER (%)	
	Boys	Girls	Boys	Girls
2010	103.2	112.4	92.2	97.6
2011	97.5	105.6	92.7	97.3
2012	101.3	107.6	95.4	98.1
2013	106.8	110.5	96.2	98.4
2014	104.6	112.3	96.6	98.8
2015	105.0	113.4	97.1	98.8

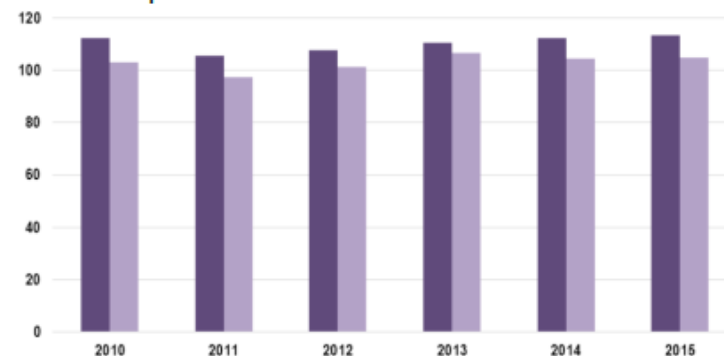
Source: BANBEIS Report 2015



Secondary Education

Year	Boys	Girls
2010	46.69	53.31
2011	46.39	53.61
2012	46.72	53.28
2013	47.00	53.16
2014	46.78	53.22
2015	47.00	53.31

Source: Compiled data from BANBEIS



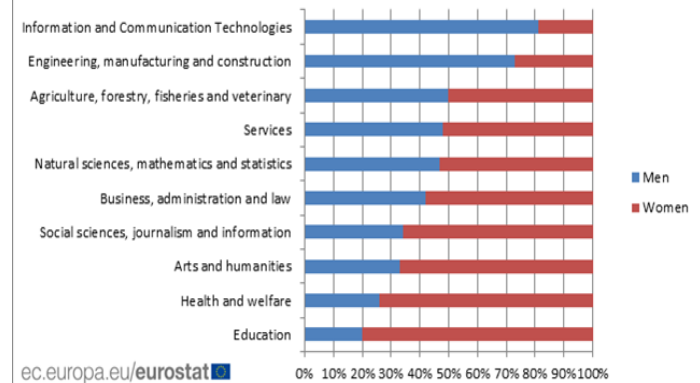
Higher Education

In 2010, the of male 59.99%; female 40.01%.

80% of graduates in the field of education are women

University Faculty	D.U Male	D.U Female	J.U Male	J.U Female
Arts and humanities	4396	2277	2479	1240
Social Science	3410	1800	2078	1016
Mathematical and Physical/Science	1386	694	2108	855
Biological Science	1088	1033	1224	712
Business studies	3289	1439	459	199
Institute	3599	1919	252	117
Law	538	179	55	26
Pharmacy	238	82	00	00
Earth and environment	365	277	00	00
Engineering and technology	645	206	00	00
Fine arts	517	410	00	00
Total	19,471	10,316	8655	4165
	29,787		12,820	

Distribution of EU graduates by field and sex, 2015



<http://www.assignmentpoint.com/arts/social-science/women-in-higher-education-in-bangladesh.html>



Women education: Importance

Women
empowerment

*Smaller
Families*

Increased
Literacy

Gender Equality

Income
Potential

Poverty
Reduction

Later Marriage
Thriving Babies

Political
Representation

Thriving
GDP

Safe Sex



IOMP-W

IOMP Women Group main functions:

- Develop, implement and coordinate tasks and projects related to the role of females in medical physics scientific, educational and practical aspects.
- To disseminate the experiences, across the globe
- Popularize the role of the women in medical physics
- encourage female medical physicist to advance in the profession
- Organize international cooperation
- Provide regular status/progress updates

MedicalPhysicsWeb


TALKING POINT

Jul 22, 2015

Women in medical physics: the current status

The IUPESM World Congress (<http://wc2015.org/>), held last month in Toronto, Canada, incorporated five main congress themes, one of which was "Women in Biomedical Engineering and Medical Physics". As part of this track, a dedicated conference session examined the current worldwide status of women in medical physics.

While studies have been performed looking at gender balance in science as a whole, the gender composition of the worldwide medical physicist workforce was previously unknown. This prompted IOMP (<http://www.iomp.org/>), the International Organization for Medical Physics, to investigate the prevalence of female medical physicists across the globe.



Virginia Tsapaki (<http://images.iop.org/objects/med/talkingpoint/10/6/1/pic1.jpg>)

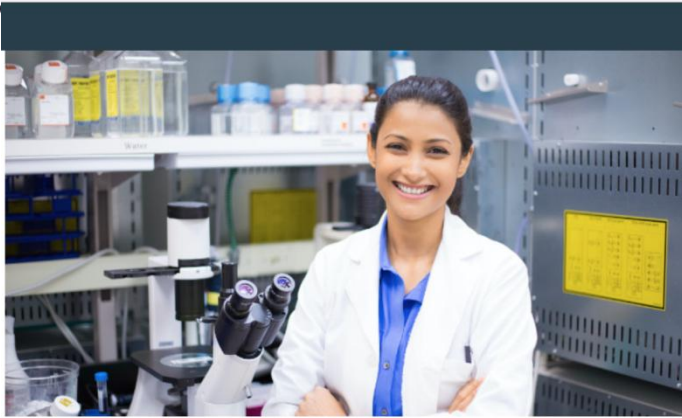
"This represents the first ever international study on women in medical physics," explained IOMP's secretary general Virginia Tsapaki (<http://www.iupesm.org/virginia-tsapaki/>), from Konstantopoulou General Hospital in Greece. Tsapaki presented the results of the study to an enthusiastic audience of conference delegates.

She described how IOMP sent out an online questionnaire to all national member organizations, as well as several countries that were members of regional organizations. To maximize response rate, the survey was kept brief, simply asking each country to submit the total number of medical physicists, the number of female medical physicists and the gender of person providing the data.





Present Status of Medical Physics Education



The Importance of Women in Medical Physics

Published on May 20, 2016

They found that the percentage of female medical physics graduate students was comparable to the percentage for general physics at 30%. Generally, there is a lower proportion of women at the highest levels of clinical medical physics.

21 Canadian centres (CAMPEP)-accredited residencies, only 3 female clinical directors. However, there are comparatively fewer women in leadership positions.

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TALKING POINT

Jul 22, 2015

Sixty-six countries answered
The total number of medical physicists cited was 17024, representing more than three quarters of the worldwide medical physics workforce.

This included 4807 women – just 28% of the total.

"We saw big differences between continents and between individual countries," said Tsapaki.

international study on women in medical physics," explained IOMP's secretary general Virginia Tsapaki, from Konstantopoulou General Hospital in Greece. Tsapaki presented the results of the study to an enthusiastic

6/19/2018





Why Medical physicist is Required?

Medical physics aspects of cancer care in the Asia Pacific region: 2011 survey results

Kron T¹, Azhari HA², Voon EO³, Cheung KY⁴, Ravindran P⁵, Soejoko D⁶, Inamura K⁷, Han Y⁸, Ung NM⁹, Bold L¹⁰, Win UM¹¹, Srivastava R¹², Meyer J¹³, Farnaka S¹⁴, Rodriguez L¹⁵, Koo M¹⁶, Lee JCL¹⁷, Kimura A¹⁸, Lee CC¹⁹, Krisnachinda A²⁰, Nguyen XC²¹, Ng KH²²



Bangladesh	Oncologists/ROM P ratio	Patients/RO MP ratio	MV Machine/ROMP 2008-2011		Population	MV Machine/Mn Pop	
			2008	2011		2008	2011
	6.1	8696	1.56	0.956	159	0.09	0.14

According to WHO report



160 radiotherapy centers, 320 radiotherapy machine, 640 MP is required in cancer treatment for Bangladesh

Bangladesh
Oncology scenario



- 13 to 15 million cancer patients
- Two million patients newly diagnosed each year.
- 200 qualified clinical oncologists
- 35 are female oncologists
- 51 Medical Physicist
- 4 are female Physicist



History of Medical Physics in Bangladesh



Prof. G. A. Zakaria



Prof. Ulrich Quast



Dr. Karl-Heinz Hoever

Main: Prof. G.A.
Zakaria
Accompanying
Prof. Dr. Hoever
Prof. Ulrich Quast

Australas Phys Eng Sci Med
DOI 10.1007/s13246-015-0342-9

REVIEW

Brief histories of medical physics in Asia-Oceania

W. H. Round¹ · S. Jafari² · T. Kron³ · H. A. Azhari⁴ · S. Chhom⁵ ·
Y. M. Hu⁶ · G. F. Mauldon⁷ · K. Y. Cheung⁸ · T. Kuppusamy⁹ · S. A. Pawiro¹⁰ ·
L. E. Lubis¹⁰ · D. S. Soejoko¹⁰ · F. Haryanto¹¹ · M. Endo¹² · Y. Han¹³ ·
T. S. Suh¹⁴ · K. H. Ng¹⁵ · A. Luvsan-Ish¹⁶ · S. O. Maung¹⁷ · P. P. Chaurasia¹⁸ ·
M. A. Jafri¹⁹ · S. Farrukh²⁰ · A. Peralta²¹ · H. J. Toh²² · A. C. Shiau²³ ·
A. Krisanachinda²⁴ · S. Suriyapee²⁴ · S. Vinijsorn²⁵ · T. C. Nguyen²⁶

Received: 10 February 2015 / Accepted: 30 March 2015
© Australasian College of Physical Scientists and Engineers in Medicine 2015

O. Dössel and W.C. Schlegel (Eds.): WC 2009, IFMBE Proceedings 25/XII, pp. 173–176, 2009
www.springerlink.com

Medical Physics Education in Bangladesh and Cooperation with Germany

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³Dept. of Medical Physics in Radiotherapy, German Cancer Research Centre, Heidelberg, Germany

**MEDICAL PHYSICS AND ENGINEERING
EDUCATION AND TRAINING
PART I**

Editors: S Tabakov, P Sprawls, A Krisanachinda, C Lewis

MPBME, GB workshop, mannheim Germany



MP Education : Bangladesh



MPBME, Gono University
Department of Medical Physics and Biomedical Engineering

Pioneer in Medical Physics education
Germany Play the main role for its foundation

Establishment 2000, MSc; 2005: BSc
Total Students 308(BSc); M:234 F:74
80 (MSc) M:75 F: 5

25% Women



Department of Biomedical Physics & Technology
University of Dhaka

Establishment 2008
MSc Started : 2014
Total : 37 Female :7
Now MP program is temporarily stopped

18 % Women

5/26/2018

Welcome to KYAU



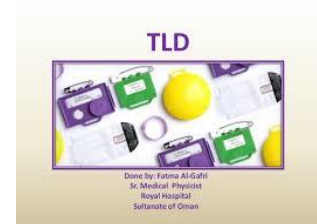
KHWAJA YUNUS ALI UNIVERSITY (./)
QUEST FOR KNOWLEDGE

MSc Started : 2014
Total Students 6
Female : 0

0 % Women



Statistics of Professional Women MP: Bangladesh (2017)



**Diagnostic
imaging**

**Nuclear
Medicine**

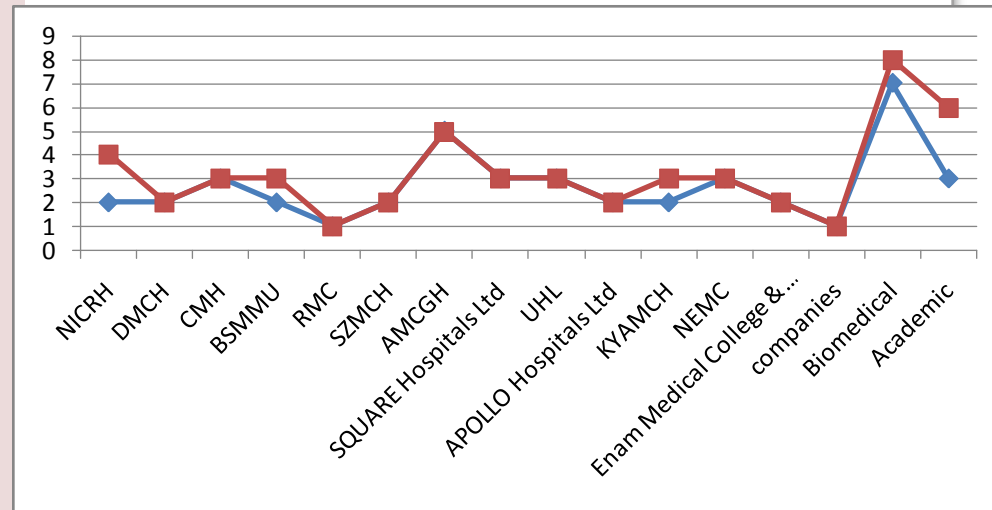
**Radiation
Oncology**

**Health
physics**



Radiation Therapy (2017)

HOSPITAL	Male MP	Female MP
NICRH	2	2
DMCH	2	0
CMH	3	0
BSMMU	2	1
RMC	1	0
SZMCH	2	0
AMCGH	5	0
SQUARE Hospitals Ltd	3	0
UHL	3	0
APOLLO Hospitals Ltd	2	0
KYAMCH	2	1
NEMC	3	0
Enam Medical College & Hospital	2	0
companies	1	0
Biomedical	7	1
MPBME, GB	3	3



Toal male :43
Female: 8, 0.18%

6/19/2018



Nuclear Medicine (2017)

INMAS	Male	Female
Shahbag	57	40
Dhaka	32	18
Mitford	31	9
Chittagong	26	6
Mymensingh	28	11
Sylhet	14	6
Rajshahi	26	8
Rangpur	30	7
Dinajpur	26	6
Khulna	23	6
Barisal	19	6
Faridpur	21	6
Bogra	30	8
Comilla	24	1
Medical Clinic HQ	2	4
Coxs Bazar	2	1
AERE Clinic, Savar	3	3
Total	394	146 (37%)

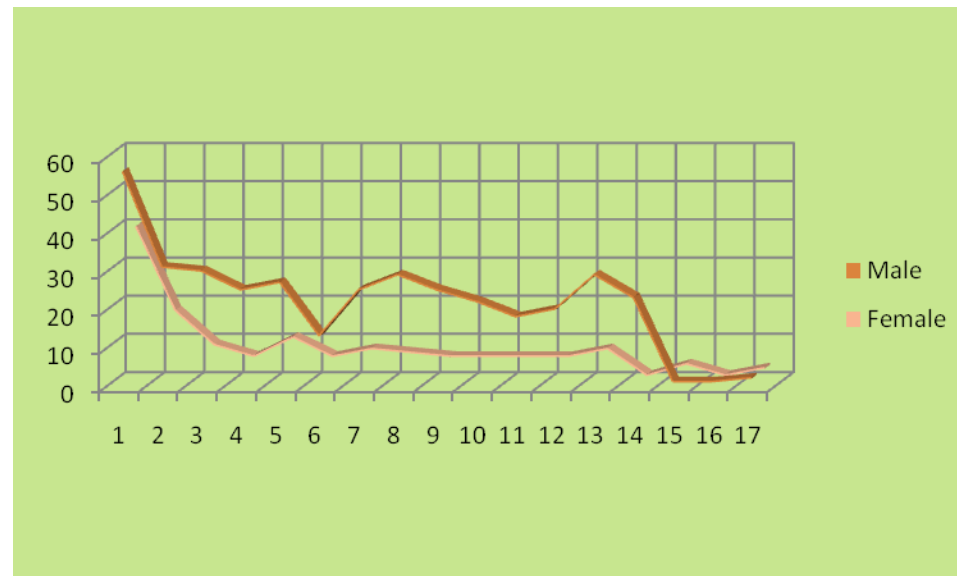
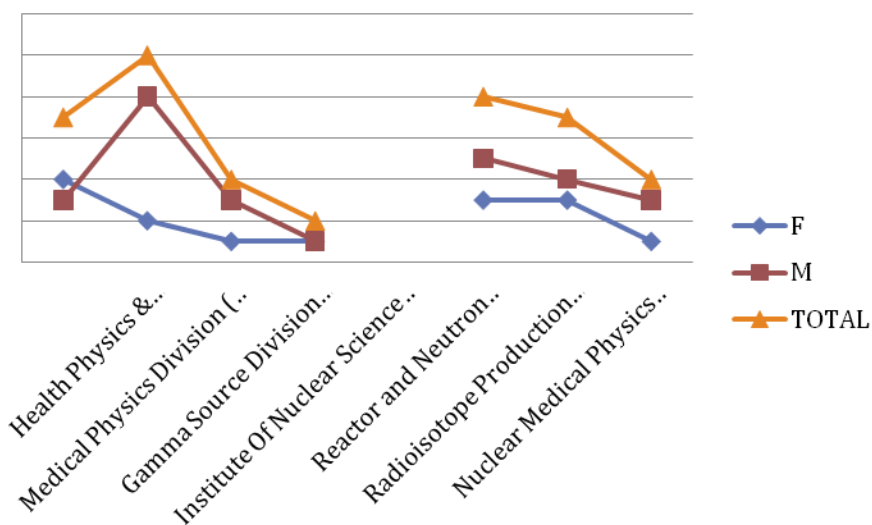


Fig 01: Graphical presentation of male and female participant (professional) in INMAS, Bangladesh.



Health Physics (2017)

Health Physics Division(HPD)	F	M	TOTAL	
	4	3	7	12
Health Physics & Radioactive Waste Management Unit (HPRWMU)	2	8	10	10
Medical Physics Division (MPD)	1	3	4	8
Gamma Source Division (GSD)	1	1	2	0
Institute Of Nuclear Science And Technology (INST)				
Reactor and Neutron Physics Division (RNPd)	3	5	8	
Radioisotope Production Division (RIPD)	3	4	7	
Nuclear Medical Physics Institute (NMPI)	1	3	4	
Total	15	27	55%	



Activities of Women in Medical Physics

Diagnostic Imaging



Nuclear medicine



Radiation Therapy



Problems of women education:General

The influencing level of women in the family depends upon the education level, the willingness and also the position she holds after finishing of the education

Lack of self-perception in the primary school

insufficient family friendly policies

lack of female role models

Attitudes and practices,

Situations of crisis and instability

Cemented in their mind by the sixth grade that they are not good at STEM subjects

Violence at school

Poverty
Cultural Barriers

Drop out from HSc due to Financial crisis

Early Mother hood



Why need women in medical physics study

Women should come
in STEM subjects

It is a subject for
service for patient
specially in RT and
radiodiagnostic

If women contribute
in medical physics
field, it will highly
contribute to **socio-
economical
condition.**

In Bangladesh some rural
areas women patients do
not share their problem in
male medical physicist. So
should increase number of
women medical physicist

Gender equality is **sustainable
development.**

Can carry information from one
generation to another

Higher education helps **to reduce
violence** against women in intimate
partner relationship.

STEM: new idea,
initiative
Work procedure other than female



CONCLUSION

Bangladesh is a densely populated country it needs to develop human resources

- Both males and females literacy situation: improving

- Gap between males and females : decreasing.

- There is also progressive decrease of other forms of violence.

- Education is the formal process by which society deliberately transmits its accumulated.

- Sex-parity gradually reached at primary and secondary levels of education;

- Awareness Role Governmental & Non governmental level
- Collaborative Activities
- National professional society: BMPS, BSRO, BCS,BSRI,SNM, BMPA
- International Organization: IOMP, IPEM, AAPM and etc.
- Publication
- Publicity in e- media
- Newspaper in regular interval



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১৭



A large group of students, many wearing headscarves, are seated at long wooden desks in a classroom. A male teacher in a white shirt stands at the front left, gesturing while speaking. The room has a white ceiling with several fans and fluorescent lights. Large windows with yellow curtains are visible in the background.





Ending all forms of discrimination against women and girls is not only human right, but also has multiple effects across all development areas including education

THANK YOU

