



**AN ANALYSIS OF MEDICAL**  
**CONDITIONS IMPACTING**  
**FITNESS IN FEMALE AIRCREW**  
**OF THE INDIAN AIR FORCE**

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# SCOPE



- INTRODUCTION
- AIM OF THE STUDY
- MATERIAL & METHODS
- RESULTS
- ANALYSIS/ DISCUSSION
- RECOMMENDATIONS
- CONCLUSION
- REFERENCES

# INTRODUCTION



**Women aviators inducted into Indian Air Force in 1993**



**First detailed analysis of medical fitness in serving women aircrew of IAF**

# AIM



- **TO ANALYSE MEDICAL CONDITIONS IMPACTING FITNESS TO FLY IN FEMALE AIRCREW OF IAF**
- **TO COMPARE LOW MEDICAL CATEGORY/ CLASSIFICATION TRENDS WITH FEMALE GROUND DUTY AND MALE AIRCREW OFFICERS**

# MATERIAL & METHODS



- **PERIOD OF STUDY:** OCT 2015- JAN 2016
- **DATA SOURCE:** MEDICAL RECORDS/ DATABASE AT AIR HQs
- **STUDY POPULATION:**
  - **ALL SERVING** WOMEN AIRCREW OF THE INDIAN AIR FORCE
  - **NUMBER:** 108
  - **AGE** : 22-40 YRS
  - **STREAM:** TRANSPORT, HELICOPTER, NAVIGATION (NO FIGHTER PILOTS)

# MATERIAL & METHODS



## DATA ANALYSIS UNDER FOLLOWING HEADS:

- ✓ **PERCENTAGE OF FEMALE AIRCREW IN LOW MEDICAL CATEGORY/ CLASSIFICATION**
- ✓ **LEADING CAUSES OF MEDICAL UNFITNESS**
- ✓ **AGE WISE DISTRIBUTION OF DISABILITY**
- ✓ **COMPARISON OF UNFITNESS TRENDS IN FEMALE AIRCREW vis a vis THOSE IN FEMALE GROUND DUTY OFFICERS AND MALE AIRCREW OFFICERS**

# MATERIAL & METHODS



## STATISTICAL ANALYSIS

- SPSS VERSION 21
- CHI SQUARE TEST
- $P \leq 0.05$  CONSIDERED STATISTICALLY SIGNIFICANT

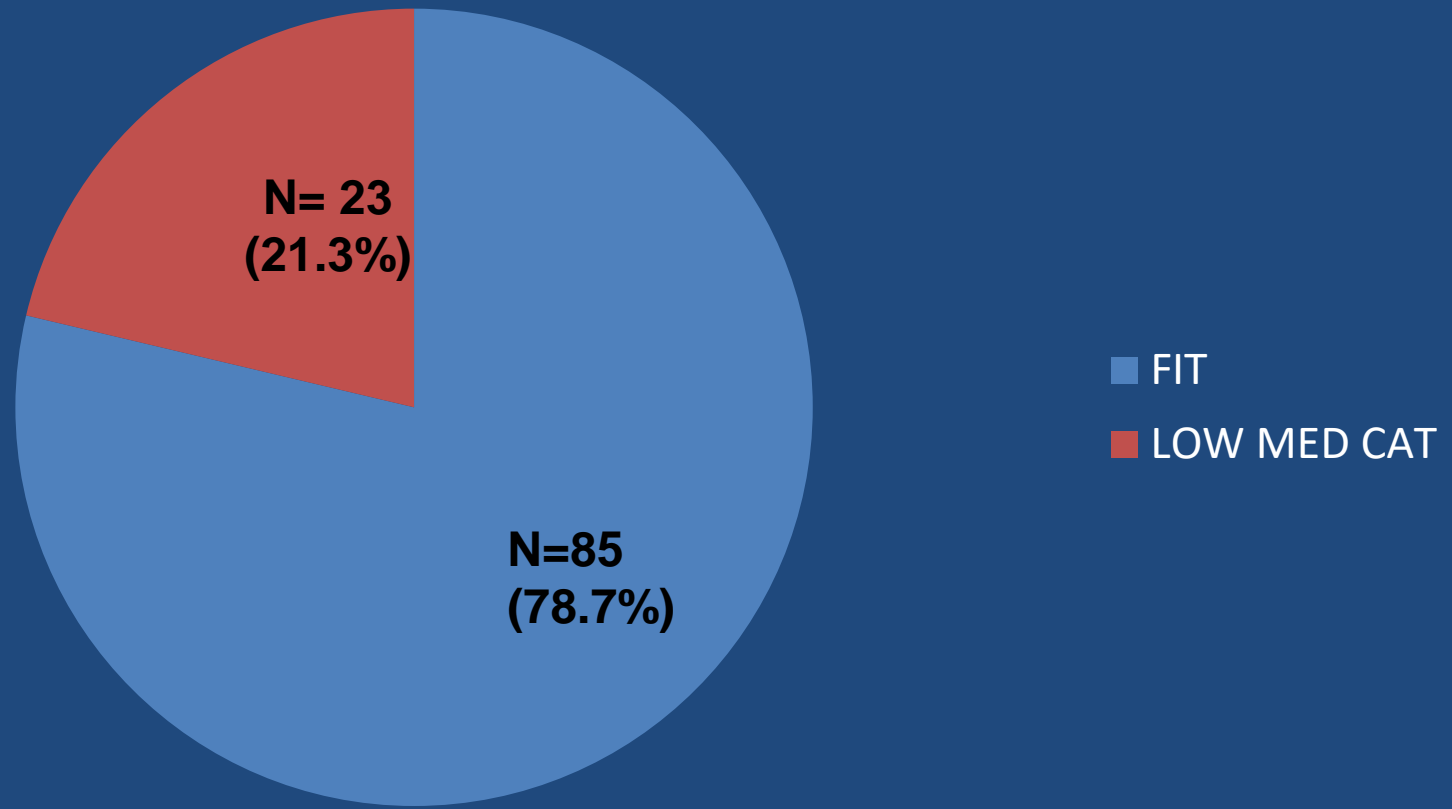
## LIMITATIONS OF THE STUDY

- SMALL SAMPLE SIZE (ONLY 108 ON STRENGTH)
- LACK OF ARCHIVAL/ RETROSPECTIVE DATA

# RESULTS



## FEMALE AIRCREW

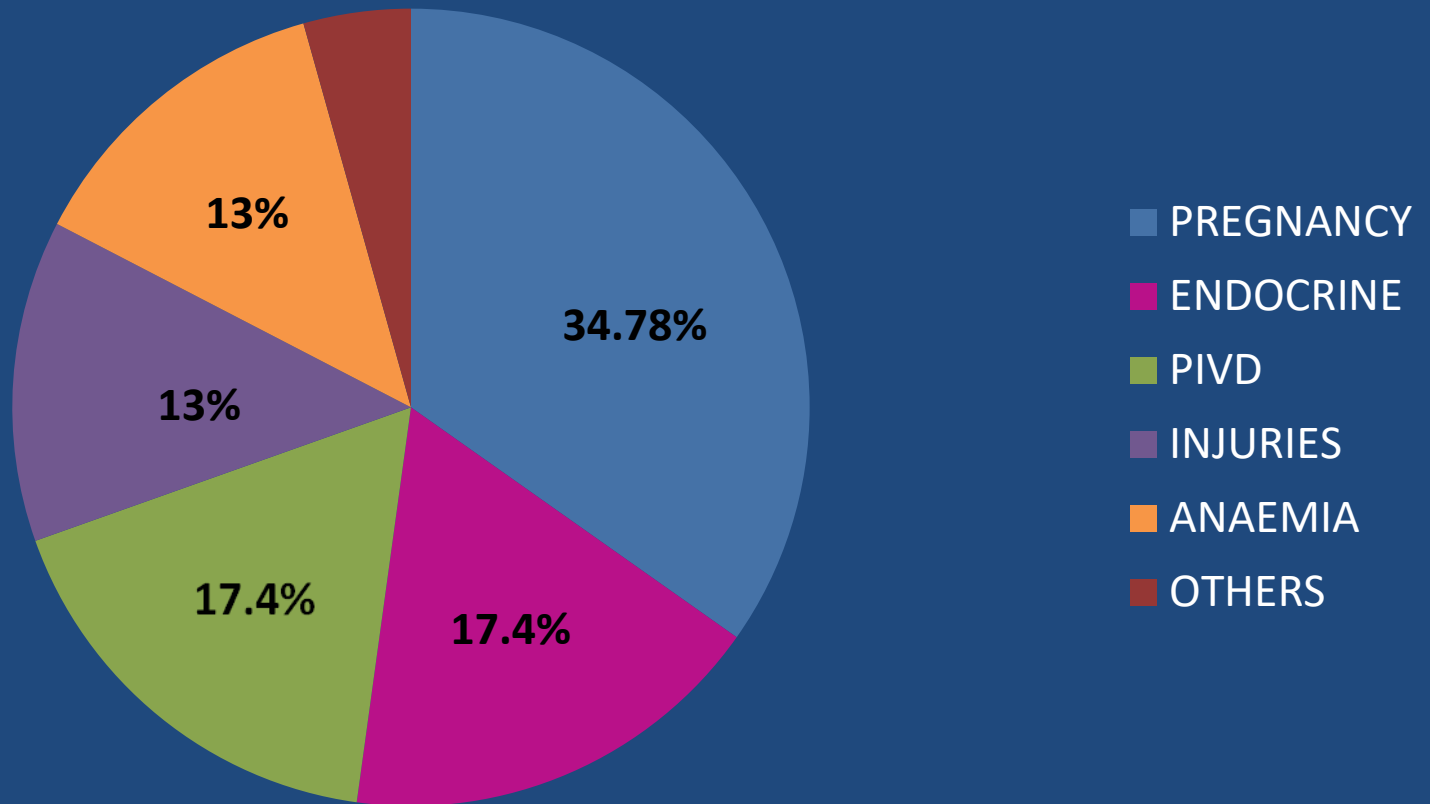




# LEADING CAUSES OF MEDICAL UNFITNESS: FEMALE AIRCREW



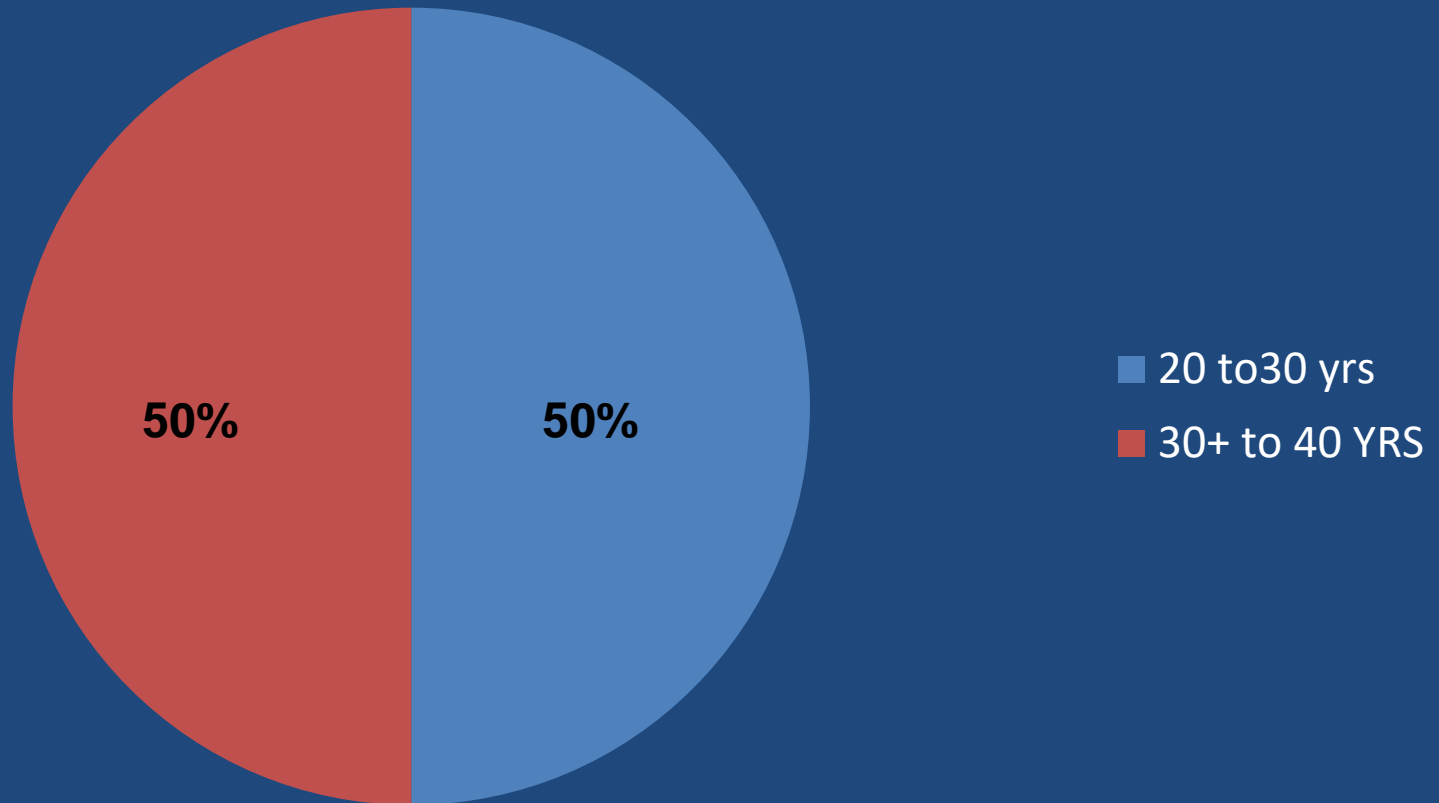
## FEMALE AIRCREW



# AGE WISE DISTRIBUTION OF LOW MED CATEGORY (LMC) : FEMALE AIRCREW



## FEMALE AIRCREW



# LMC TRENDS IN FEMALE AIRCREW

VS

# FEMALE GROUND DUTY OFFICERS



- PERCENTAGE OF LOW MED CATEGORY (LMC) FEMALE GROUND DUTY OFFERS= 15.63%
- DIFFERENCE WITH FEMALE AIRCREW STATISTICALLY **NOT SIGNIFICANT** ( $p=0.121$ )
- LEADING CAUSE OF MEDICAL UNFITNESS= PREGNANCY (50.21%), FOLLOWED BY ENDOCRINE DISORDERS & OBESITY, 14% EACH
- AGE WISE DISTRIBUTION OF DISABILITY:
  - 20-30 yrs = 36.8%
  - +30-40 yrs = 49.1%
  - +40-55 yrs = 14.1%

# LMC TRENDS IN FEMALE AIRCREW

VS

## MALE AIRCREW OFFICERS



- DIFFERENCE WITH MALE AIRCREW (ACROSS ALL AGE GROUPS) STATISTICALLY NOT SIGNIFICANT ( $p=0.113$ )
- HOWEVER WHEN COMPARED TO SIMILAR AGE GROUP (**20-40 yrs**), HIGHER PERCENTAGE OF FEMALE AIRCREW ARE UNFIT AND THIS IS **STATISTICALLY SIGNIFICANT** ( $p= 0.0015$ )
- LEADING CAUSES OF MEDICAL UNFITNESS IN MALE AIRCREW: LIFE STYLE DISEASES ( HYPERTENSION (15.6%), DM TYPE 2 (10%))

# ANALYSIS/ DISCUSSION



- ✓ WOMAN AVIATORS ARE SUBJECT TO **MORE TEMPORARY RESTRICTIONS** FROM FLYING DUTIES
- ✓ THIS TREND IS **SIGNIFICANT IN THE AGE GROUP OF 22-40 YRS** WHEN MAXIMUM ACTIVE MILITARY FLYING TAKES PLACE
- ✓ THE LEADING CAUSE OF MEDICAL UNFITNESS IS **PREGNANCY (35%)**, A PHYSIOLOGICAL PHENOMENON, FOLLOWED BY ENDOCRINE CAUSES & PIVD

# ANALYSIS/ DISCUSSION



- ✓ FEMALE AIRCREW IN THE IAF ARE PLACED IN A NON FLYING CATEGORY AS SOON AS PREGNANCY IS CONFIRMED (SIMILAR TO MANY OTHER AIR FORCES THE WORLD OVER)
- ✓ THEREFORE, AVERAGE PERIOD OF OPERATIONAL NON- AVAILABILITY DUE TO EACH NORMAL PREGNANCY & SUBSEQUENT MATERNITY LEAVE IS 12-15 MONTHS

# ANALYSIS/ DISCUSSION



- IN THE US, PREGNANCY WHILE IN AN 'ACTIVE FLYING STATUS', HAS BEEN MINIMAL
- FEMALE AIRCREW CAN ALSO REQUEST A WAIVER TO CONTINUE FLYING UP TO 24 WKS OF PREGNANCY
- **DIFFERENT SOCIO-CULTURAL CONTEXT** IN INDIA AND OTHER ASIAN COUNTRIES:
  - ❖ ASIAN WOMEN STILL GENERALLY FACE **SIGNIFICANT SOCIETAL PRESSURE TO MARRY AND BEAR CHILDREN YOUNG** — AN IMPERATIVE AT ODDS WITH THE GRUELING TRAINING AND DUTIES REQUIRED OF A PILOT.

# ANALYSIS/ DISCUSSION



## VARIOUS REASONS FOR INDUCTION OF FEMALE MILITARY AIRCREW DESPITE PATRIARCHAL VALUES & SOCIO CULTURAL OBSTACLES :

- Desire to expand the pool of motivated and well-educated personnel esp in countries with small populations like Japan, Singapore
- Transformative, political act in the face of persistent gender inequality.
- Nationalistic and patriotic sentiments
- Government's aspirations to modernise/ Symbols of a state's modernity eg in Afghanistan
- Pressure to 'keep up' with inclusion of females in each other's militaries.
- Modern fighters require greater technical and analytical skills vs requirement of greater physical strength and stamina of older generation aircraft



# ANALYSIS/ DISCUSSION



## PHYSIOLOGICAL OBSTACLES??

- North American and European air arms began inducting female combat pilots in the 1990s. Today, nearly one-fifth of the active-duty U.S. Air Force is female — the highest percentage of any U.S. military service. **However, out of 62,500 female personnel, there are only 665 pilots, of which 100 are fighter pilots.**
- Pregnancy and the possibility of foetal damage in the early stages of pregnancy (before diagnosis of pregnancy) appears to be perhaps the **biggest single medical concern** in allowing women unrestricted access to all aviation/space related careers (5).

# RECOMMENDATIONS



- ✓ **CONTINUED ANALYSIS** OF UNFITNESS/ DISEASE STATISTICS AND TRENDS IN WOMEN AIRCREW
- ✓ FORMULATION OF **SUITABLE HR AND TRAINING POLICIES**, IN VIEW OF THEIR UNIQUE PHYSIOLOGICAL REQUIREMENTS
- ✓ **BETTER MENTORING AND COUNSELLING** OF FEMALE AIRCREW WHILE IN ACTIVE FLYING PHASE
- ✓ **RIGHT BALANCE** BETWEEN GENDER ASPIRATIONS AND OPERATIONAL REQUIREMENTS OF ANY AIR FORCE

# CONCLUSION



- ❖ AIR FORCES MUST **UNDERSTAND THE BACKGROUND AND CONTEXT** OF THE HEALTH OF WOMEN IN MILITARY AVIATION AND **SUPPORT RESEARCH EFFORTS** TO ADDRESS THEIR HEALTH ISSUES, LEADERSHIP CHALLENGES AND UNIQUE MEDICAL CONCERNS.
- ❖ THERE MUST BE A **SUSTAINED INSTITUTIONAL EFFORT** FOCUSED NOT ONLY ON WOMEN'S **HEALTH RESEARCH** BUT ALSO **POLICY**, IN ORDER TO IDENTIFY GAPS AND SOLUTIONS SO AS TO SUCCESSFULLY INTEGRATE WOMEN AIRCREW FULLY INTO COMBAT ASSIGNMENTS.

# DISCLAIMER

- VIEWS/ OPINIONS EXPRESSED ARE PURELY THE AUTHOR'S & DO NOT REFLECT THE ORGANISATION'S
- NO CONFLICT OF INTEREST

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# THANK YOU!



## NAMASTE!

## KHOB KHUN KHA!



