Document heading **doi: 10.21276/apjhs.2018.5.3.25** **Original Article**

Impulsivity among women with unintended pregnancy

Ashwini R S[1] , Srinivas K[2*], Prashanth N R[3]

[1]Post Graduate, Department of Obstetrics and Gynecology, Bangalore Medical College and Research Institute, Bangalore, India
[2]Associate Professor, Department of Obstetrics and Gynecology, Bangalore Medical College and Research Institute, Bangalore, India
[3]Professor, Department of Psychiatry, Bangalore Medical College and Research Institute, Bangalore, India

Received: 15-07-2018 / Revised: 20-08-2018 / Accepted: 07-09-2018

ABSTRACT

Unintended pregnancy is a worldwide problem that affects women, their families and society. Abortion is a frequent consequence in the developing world and can result in serious long term negative health effects including maternal death.**Aims:1.**To assess impulsivity among women with unintended pregnancy**2.**To analyze the type of impulsivity among the study sample. **Methodology:** 47 pregnant women admitted to Vanivilas and Gosha hospitals with history of MTP pill abuse or for MTP were randomly selected and compared with 50 controls who came for regular ANC over a period of 2 months and a cross sectional observational study was done. Each patient was given Barratt's impulsivity questionnaire after taking consent and assessed for impulsivity and the type. Results were analyzed using student t test or ANOVA accordingly.**Results:**47 cases were matched with 50 controls. 87% of the cases were found to be impulsive versus 20 % among controls, hence impulsive women are at 27.33 times higher risk of having unintended pregnancy, with a statistical significance $p<0.05$.The pattern of impulsivity among the cases was that , 40.5% were Non planning type(NP), 17% Attentional (AI), 21% Motor(MI), 8.5% mixed and 13% were non impulsive. While in the control group 2% were NP, 4% AI ,0 MI, 14% had mixed type, 80% were non impulsive. **Conclusion:** Women with higher levels of non planning impulsivity are significantly at a higher risk of having unintended pregnancies and its sequeale. Identifying this helps in implementation of psychotherapy or pharmacotherapy and contraception counselling as well.

Keywords: impulsivity, MTP pill abuse, non planning, unintended pregnancy

Introduction

Impulsivity could be understood as a tendency to act on an impulse or emotion, with either little or no forethought, reflection, or consideration of the consequences. Impulsive actions are typically not well planned, usually untimely, can be dangerous and most often not at all apt for the situation.

Impulsivity – is defined biologically as individuals who planned aggressive acts and have larger evoked potential amplitudes and higher CSF serotonin metabolite levels

**Correspondence*
Srinivas K
Associate Professor, Department of Obstetrics and Gynecology, Bangalore Medical College and Research Institute, Bangalore, India.
E -Mail: srinivaskjois@gmail.com

Psychologically – impulsivity includes following elements – a) decreased sensitivity to negative consequences of behavior. b) Rapid, unplanned reactions to stimuli before complete processing of information. c) Lack of regard for long term consequences

Socially – to react immediately to obtain what is desired for gratification 1]

Types of impulsivity: In simple terms,

a. **Non planning** – Lack of futuring
b. **Attentional -** Insufficient focusing of attention
c. **Motor** – Acting without thinking[2]

Unintended pregnancy -The average fertile couple trying for a child may take three or four months to conceive and many couples go through a stage whether they are not exactly planning a child now, but at the same time are not exactly doing everything in their power to prevent it [3].Unintended pregnancy can be mistimed (occur earlier than desired) or unwanted pregnancy (no children/no more children were

desired)[4].Pre marital sex, promiscuity, curiosity, ignorance, illiteracy, sexual abuse all can result in pregnancy which is most often unwanted than unplanned. The knowledge about termination of an unwanted pregnancy is reasonably good but it is not so with the safe options available for termination. Here the impulsivity of the woman may act at two levels. Firstly the occurance of pregnancy itself and secondly taking decisions about the termination methods without thinking of the immediate or long term consequences. At both levels they can have risky consequences.

Unintended pregnancy is a worldwide problem that affects women, their families and society. Unintended pregnancy can result from contraceptive failure, non use of contraceptive services and less commonly rape[5].They culminate in abortion (safe or unsafe) or unplanned births [4]

Abortion is a frequent consequence of unintended pregnancy and in the developing world can result in serious long term negative health effects including maternal morbidity and death [5]

High non-planning impulsivity maybe a risk factor for unplanned pregnancy [6]

Understanding the nature of a woman and about her impulsive nature may help in preventing this kind of situations, catastrophes arising from them, immediate risks involved with the woman and long term reproductive and other morbidities, rarely mortality too. This can be achieved by counseling, psychotherapy and also pharmacotherapy in selected cases.Lower education levels, greater number of children, financial problems and poor emotional relationship with spouse are the important risk factors in unwanted pregnancies. Identifying them is the first step in reducing unintended pregnancy, negative health and social consequence [7]

Aims and objectives

1. To assess impulsivity among women with unintended pregnancy.
2. To analyze the type of impulsivity among the study sample.

Materials and methods

Place of study- Maternity hospitals attached to Bangalore Medical College and Research Institute

Period of study- April 2017- June 2017

Study design- Cross sectional observational study

Sampling technique- simple random sampling

Sample size- 47 cases that opted for MTP versus 50 controls who came for regular ANC

Inclusion criteria

a. Admitted with unwanted pregnancy for termination
b. Patients admitted with incomplete abortion with abuse of medical methods self administered
c. With septic abortion due to handling elsewhere

Exclusion criteria

1. Who could not comprehend the questions
2. Not very sure about their intentions
3. Known psychiatric illness
4. Unmarried girls

Methodology

Women admitted to Vani Vilas Hospital or Gosha Hospitals attached to BMC& RI during the study period of April 2017 to June 2017 who fulfilled the inclusion and exclusion criteria were recruited for the study. Informed consent was obtained. Their age, parity, marital life, previous delivery details, duration of present pregnancy, any other co morbidity, history of self administration of MTP pill, physician consultation, other abortive methods if any were noted. Their general physical examination and obstetric examinations done. Routine investigations done during pregnancy were also done along with ultrasound scan to assess the need for obstetric interventions

Impulsivity scoring was done in all of them with Modified Barratt's scoring.

The BIS-15 consists of three subscales and items are scored 1-4: Subscale Item were numbered from 1-15. (Annexure 2)

The 15-item Barratt Impulsiveness Scale (BIS-15) measures impulsivity using subjective statements about the respondent's behavior with 4 response options: rarely/never(=1), occasionally(=2), often(=3) and almost always/always(=4). Three subscales with 5 questions each measure attention, motor, and nonplanning impulsivity.

Total impulsivity score was done by adding the item scores marked against them

Non-planning impulsivity items-1*, 5*,7*, 8*, and 15*

Motor impulsivity items-2 , 9, 10, 12, &13,

Attentional impulsivity items-3, 4*, 6, 11, & 14

*- reverse scoring questions.- where in the values are given as follows rarely/never(=4), occasionally(=3), often(=2) and almost always/always(=1)

Accordingly patients were divided into 3 groups. Women were categorized as being non impulsive (subscale score of <10) versus more impulsive (11-20). This cut off has been used in other studies.50 married pregnant women attending the OPD were used as controls that were matched with respect to age and gestation of the study subjects. Subjects were interviewed and the impulsivity patterns in them were also documented. Comparisons were analyzed using student t test or Anova test depending on number of parameters (2 and > 2 respectively). (Table 1)

Table 1: Parameters versus case and controls

Parameters	Cases	Controls
Mean age	28.5 Years	25.1 Years
Mean years of marriage	9.5 Years	8 Years
Mean order of pregnancy	3.6 Years	1.7
Mean gestational age	3 Months	4.5 Months

Results

Total number of subjects recruited for the study was 47 and were matched with 50 controls and the following were the observations made.

A) Impulsivity among cases and controls: Overall 87% of the study group was found to be impulsive whereas ONLY 20% in the control group were impulsive. This shows **a statistical significance with p value <0.05.** The pattern of impulsivity in the study group was that , 40.5% were Non planning type, 17% had Attentional type, 21% constituted the Motor , 8.5% of the mixed type and 13% were non impulsive.

While in the control group 2% were Nonplanning type, 4% had attentional,0 of the motor type, 14% had mixed type, 80% were non impulsive. This shows that unintended pregnancy is **27.33times** more among impulsive women when compared to non impulsive on descriptive analysis – chi square test. This has been shown in Table 2 and comparative frequency in Fig 1 and 2.

Table 2: Impulsivity in case and controls

Impulsivity	Total	Np	Ai	Mi	Mixed	Ni
Cases	47	19(40.5%)	8(17%)	10(21.5%)	4(8.5%)	6(13%)
Controls	50	1(2%)	2(4%)	0(0)	7(14%)	40(80%)

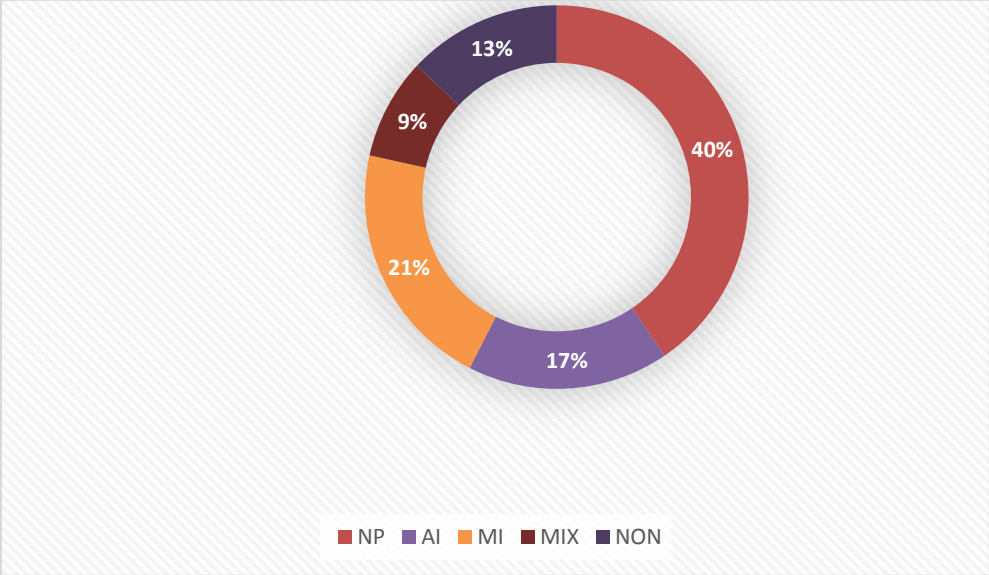

Fig 1:Impulsivity among cases

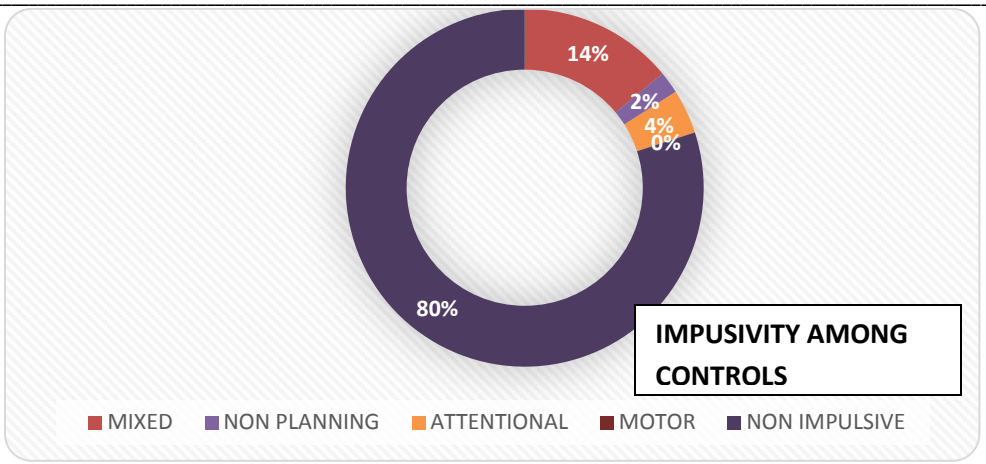

Fig 2:Impulsivity among controls

B) Impulsivity with age :(ANOVA test)The study group had the youngest subject being 19 years and the oldest was 38 years. 20 were in the 25-29 age group and 17 in the >30 age group. NP was found more frequently in the 25-29 year women and the >30 age group women were found to have more of MI and AI. Impulsivity was **1.78 times** more in > 25 years when compared to < 25 years. But comparing the numbers in all the age groups**, no significance (p value> 0.05)** could be attached to the age groups in relation to impulsivity.(Table 3 & Fig 3)

Table 3: Impulsivity with age

Age	Total	NP	AI	MI	NI
<25	10	3	3	3	1
25-29	20	13	1	4	2
30 & above	17	6	6	4	1

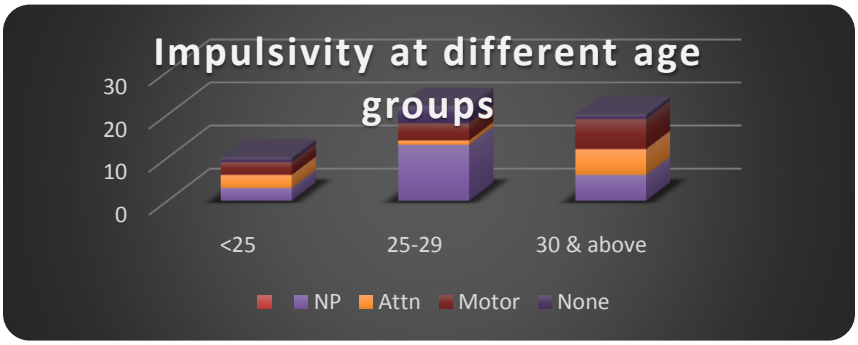

Fig 3:Impulsivity at different age groups

C)Impulsivity and educational levels:(ANOVA TEST)

Table 4: Impulsivity and education levels

Education	Total	NP	Attn	Motor	Nil
Illiterate	13	6	2	4	1
Primary education	13	5	5	2	1
Secondary level	16	9	0	6	1
Beyond secondary	6	2	2	2	0

In the table 4 the educational status of the subjects has been analysed. No significant difference was found in the impulsivity of illiterates versus literates or subjects with primary education versus women with higher education. The same thing is shown in Fig 4 which shows that number wise NP is found more frequently in illiterates and women with secondary level of education. AI was more with primary educated and women with beyond secondary education. No significance could be attached to education and its relation to impulsivity in our study subjects.

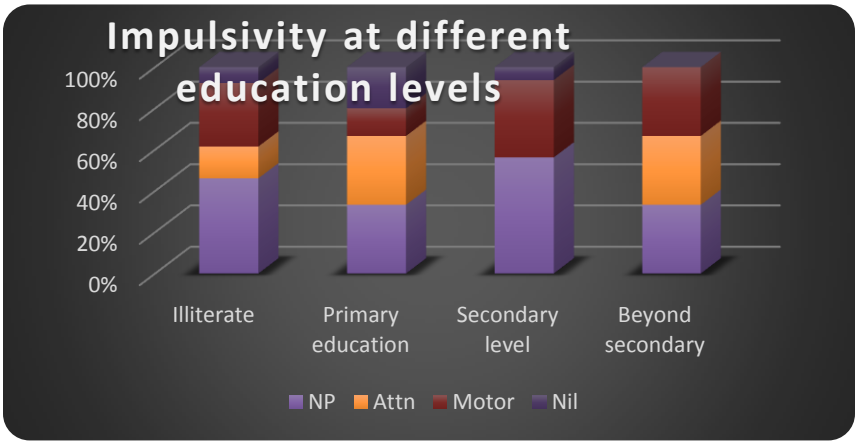

Fig 4:Impulsivity at different education levels

D) Impulsivity and occupation: (ANOVA TEST) Close to 80% of our patients were Non working and were home makers. An analysis was done to see the influence of occupation on the impulsivity pattern. This is shown in table 5 and Fig 5.

Table 5:Impulsivity and occupation

Occupation	Total	NP	A	M	Nil
Home maker	37	16	7	12	2
Manual worker	5	3	1	1	0
Clerical and administrative	5	2	1	1	1

NP was found to be equally distributed amongst all but numbers say working women are less motor impulsive compared to homemakers. Home makers were **1.9 times** more impulsive than working class. But statistical analysis **did not show any significance** (p value >0.05) of occupation in relation to impulsivity. The same has been depicted graphically in Fig 5.

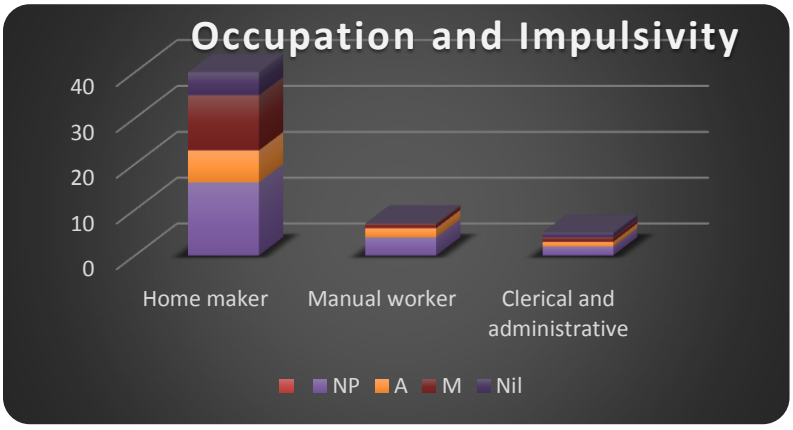

Fig 5:Occupation and impulsivity

E)Impulsivity and socioeconomic status: (ANOVA TEST)

Table 5 shows the socioeconomic class distribution of the subjects. None of the Upper middle class women had AI or MI . This aspect finds a statistical significance whereas NP is found to be with a similar frequency in all the groups. Lower social class were **3.33 times** more impulsive than middle calss but**no significance**(p value >0.05) could be attached. The graphical representation in Fig 6 clarifies this observation.

Table 6:Socioeconomoic class distribution

Socioeconomic class	Total	NP	A	M	None
Upper lower	17	7	3	5	2
Lower middle	22	8	6	6	2
Upper middle	8	6	-	-	2

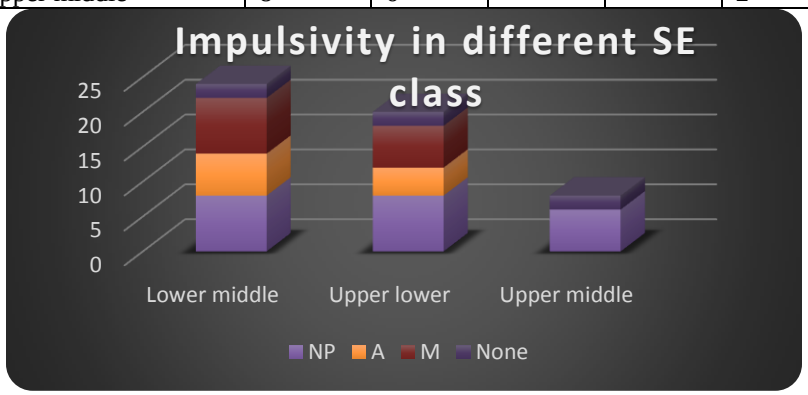

Fig 6:Impulsivity in different SE Class

F)Impulsivity with duration of marriage : (ANOVA TEST)

Duration of married life and impulsivity relation analysis showed that increasing period of married life probably has made the women less impulsive. This is shown in table 6. Women married for >10 years were having less of NP but other impulsivity were proportionately same. Women married for < 5 years **were twice** more impulsive then > 10 years of marriage. But statistical analysis **did not show any significant difference** (p value >0.05) in NP too. Fig 7 has a graphical representation. Subject with 1yr married life was the one with least duration of married life and 18 years was the most.

Table 7: Impulsivity with duration of marriage

Married life	T	NP	A	M	N0
Upto 5 years	13	6	4	2	1
6-10 yrs	20	11	2	5	2
>10 yrs	14	5	3	4	2

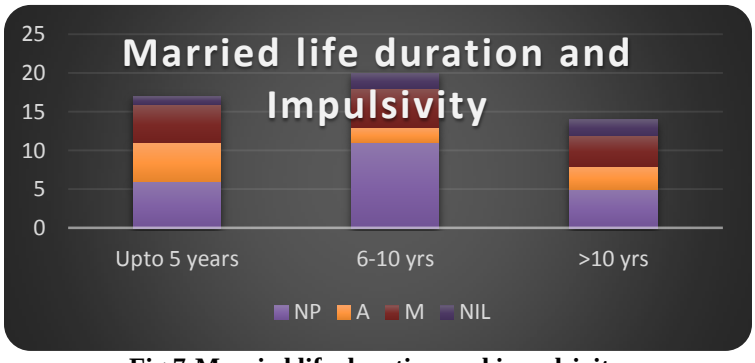

Fig 7:Married life duration and impulsivity

G)Impusivity with order of pregnancy:(ANOVA TEST)

An analysis was made to find the influence of pregnancy order and impulsivity. Only two subjects were primigravidae and the rest were multigravidae. 2 subjects were pregnant for the 5th time. NP was the most common impulsivity found amongst all of them followed by motor impulsivity. This is shown in table 7and Fig 8. Women with 3rd and 4th pregnancy were **9.5 times and 5 times** more impulsive than primi. But **statistical significance couldnot** be attached to this analysis.

Table 8:Impulsivity with order of pregnancy

Gravida	T	NP	A	M	N0NE
1	2	1	0	0	1
2	10	6	3	0	1
3	21	10	3	6	2
4	12	4	2	4	2
5	2	1	0	0	1

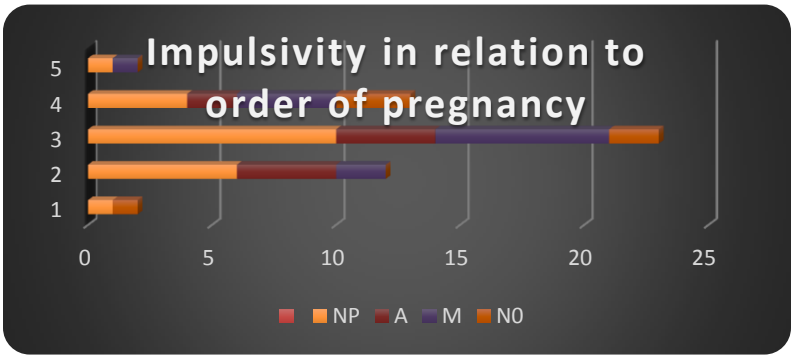

Fig 8:Impulsivity with order of pregnancy

H)Impulsivity with gestational age:(t TEST)

An attempt was made to look at any significant difference in the impulsivity pattern at different periods of gestation at presentation. (Table 8) 31 subjects had presented before 2 months of gestation and the rest after 2 months. Average period of gestation was 2.3 months, minimum being 1 ½ months and maximum 4 ½ months. In women with gestational age of 3 months and above 10 out of 31had NP, the ones with2 months gestation 12 out of 16 had NP. NP was relatively more in women presenting after 2 months of gestation. MI was more in lesser gestational age women. **But no statistical significance** could be attached. This is shown in Fig 9

Table 9: Impulsivity at different gestational age at presentation

Gest Age	T	NP	A	M	Nil
<2 months	31	10	7	10	4
>2 months	16	12	2	4	-

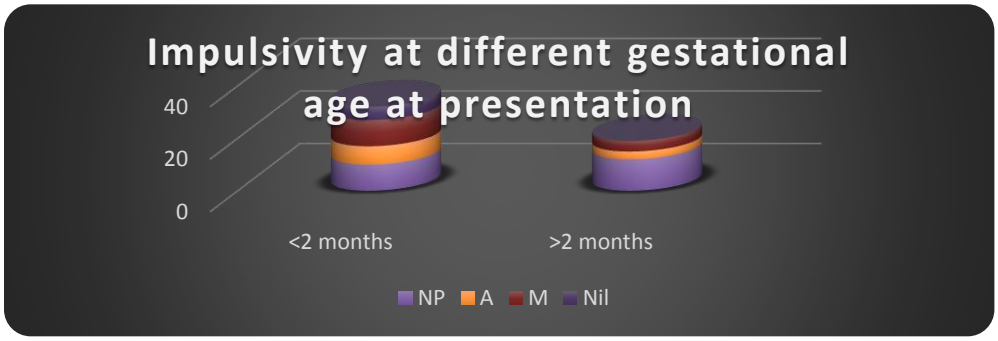

Fig 9:Impulsivity at different gestational age at presentation

I)Impulsivity between MTP abusers and non abusers:(t TEST)

27 of the study subjects had approached us for some problems associated with the abuse of MTP pills obtained across the counter. 20 had approached us for MTP and sterilization (Laparoscopic tubal occlusion) directly. These two groups were compared for differences in impulsivity pattern. This is shown in Fig 10 and table 9.Out of 27 MTP abuse 14 were with NP, 7AI and 6MI, Of the 20 direct admissions 9were with NP, 3 AI, and 5MI. This shows a significant difference in NP between the two groups. AI also shows a significant difference being more often found amongst MTP pill abusers. On the whole **was not statistically significant**

Table 10:MTP abuse for motor, attention, NP

Abuse	T	NP	A	M	Nil
Yes	27	14	7	6	0
No	20	9	3	5	3

Fig 10:MTP abuse for motor,attention,NP

J)Impulsivity with respect to regional distribution:74% of the study population lived in urban areas and **no significant** difference was observed between the urban and rural population in relation to impulsivity(Fig11)

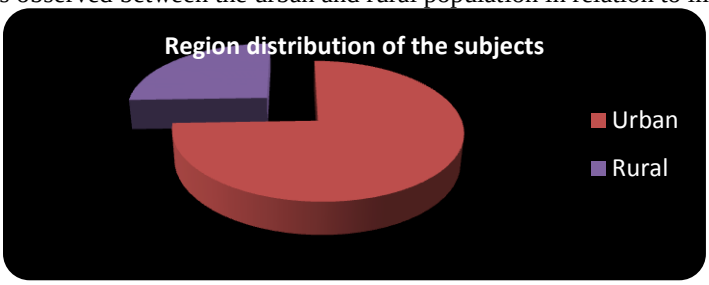

Fig11: Region distribution of the subjects

K)Impulsivity and relgion

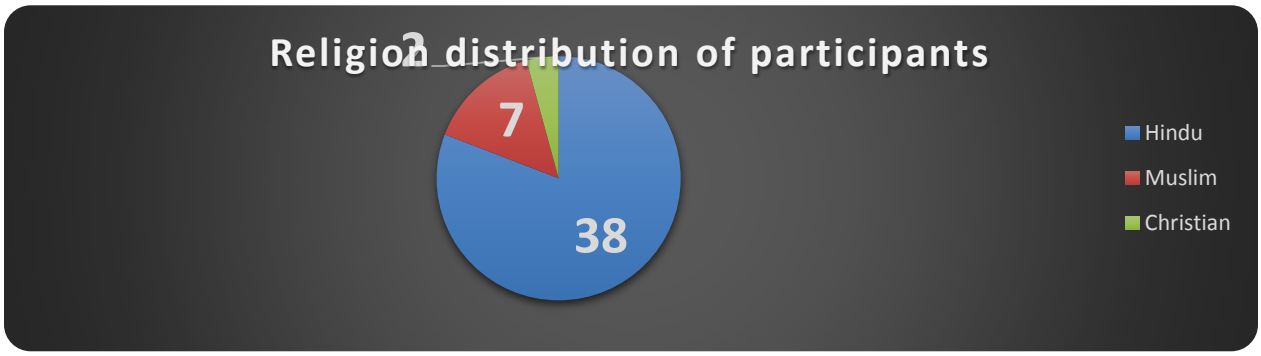

Fig 12:Religion distribution of participants

Fig 12 shows the religion of our study population. 81% were Hindus, 15% were Muslims. **No significance** could be attached to the religion as there was a great discrepancy in the numbers.General condition of all the patients at admission was stable and USG examination revealed either an ongoing pregnancy corresponding to the period of ameorrhoea or retained products of conception.

Table 11: Results of tests of significance (p value) (student t test for 2 parameters and anova test for >2)

Sr. no	Impulsivity	Non planning	Attentional	Motor	Non impulsive
A	**Cases v/s controls**	< 0.0001	<0.0001	0.09	<0.0001
B	**Age**	1.0000	1.0000	1.0000	1.0000
C	**Education**	Na	Na	Na	Na
D	**Occupation**	1.0000	1.0000	1.0000	1.0000
E	**Socio-economic status**	1.0000	1.0000	1.0000	1.0000
F	**Marriage duration**	1.0000	1.0000	1.0000	1.0000
G	**Order of pregnancy**	Na	Na	Na	Na
H	**Gestational age**	Na	Na	Na	Na
I	**Mtp abusers vs non abusers**	Na	Na	Na	Na

p < 0.05 significant
p > 0.05 not significant
NA – not applicable

Discussion

The study was undertaken to look at the impulsivity pattern amongst women with unintended pregnancies and who approached the hospital either for termination of pregnancy or for management of complications following the MTP pill abuse. The control group who were the pregnant women coming for regular antenatal care were also analysed for impulsivity. It was found that the women with unintended pregnancy were more impulsive especially with regard to planning (More with NP impulsivity). Basic analysis of all the impulsivity pattern showed that 92% of the subjects of the study were impulsive whereas 80% of the control were non impulsive. This shows a significant difference ($p < 0.05$). The study by Prachi godiwala showed that amongst the women with unplanned pregnancy 63% of them were impulsive [8]. 34% of women reported that their current pregnancy was unplanned, and 32% had high non-planning impulsivity. Fifty-one percent of women with high non-planning impulsivity reported an unplanned pregnancy versus 25% of women with low impulsivity. Women with high non-planning impulsivity had 3.53 times the odds of unplanned pregnancy compared to women with low non-planning impulsivity Our study as we have also included the ones who have taken MTP pill across the counter and presented with problems the impulsivity rate is more and that too more of Non planning impulsivity in our study too.

The present study showed that the impulsivity was more in women with advancing age. But because of discrepancy in the number between the different age groups, significance could not be attached to it. In another study on 'Age Differences in Sensation Seeking and Impulsivity'which are unrelated to puberty, follow a linear pattern, with impulsivity declining steadily from age 10 on. Heightened vulnerability to risk-taking in middle adolescence may be due to the combination of relatively higher inclinations to seek excitement and relatively immature capacities for self-control that are typical of this period of development. But this study has looked at only adolescent group as such hence comparison may not be applicable.We also looked at the influence of socioeconomic state of the subjects and the impulsivity nature. This shows that none of the Upper middle class women had AI or MI . This aspect finds a statistical significance whereas NP is found to be with a similar frequency in all the groups and no significance could be attached. A study on ' how does socioeconomic state influence a child's personality' concluded that children from families with higher SES are more patient, tend to be more altruistic and less likely to be risk seeking, and score higher on IQ tests. And many dimensions of a child's environment differ systematically by socioeconomic state [10].

In a report by James Naimann, it has been stated that unmarried mothers were found to be more impulsive than their married counterparts. But in our study we have seen only married women and unmarried girls were excluded from the study. But the results of our study showed that the more the duration of the married life, less impulsive women are. But this could not be drawn as a conclusion as no statistical significance could be attached to this observation[11]

Studies by J Kau, Hirschmanet al, concluded that 'people impulsivity or innovativeness may be correlated or influenced by such variables as educational attainment, occupational status and marital status as well. Therefore, it is likely to expect that different educational levels will result in different degrees of women's impulsivity. The study showed the following results: First, married women appear to be more impulsive in their shopping behavior than divorced women. Second, women's impulsivity increases as the level of their educational attainment and occupational status increases[12,13]. Finally, women's impulsivity increases as women become older and older'. The reports of our study may not totally agree with the above observations of these studies. But probably as we are dealing with women with a lot of concern about the family size and may not be comparable with shopping nature. Most of them being in a similar age group probably does not form a cohort that could be compared with the above study subjects. The other aspects studied like order of pregnancy, duration of gestation, ones approaching for MTP versus the ones who impulsively consumed MTP pill, no other studies were found to do a comparison. A sexually impulsive person has a pronounced tendency to engage in sexual activity without stopping to consider the possible negative ramifications of that activity[15]. Probably a person with multiple impulsive disorders, Non planning, and sexual impulsivity may go hand in hand and can result in unintended pregnancy.

Conclusion

The study proves beyond doubt that the impulsivity is significantly more in women with unintended pregnancy. The knowledge of this would help us to take care of them regarding the need for psychotherapy or pharmacotherapy so that repeated unintended pregnancies and abortions and complications associated with it are prevented and as a result helps in improving the women's health, reduce indirectly the mortality and morbidity.

Prospects and limitations

PROSPECTS

1. OPD Patients who came for medical methods can also be recruited
2. Unmarried versus Married women impulsivity pattern could be studied
3. Impulsivity regarding pregnancy termination in women with other psychiatric/medical disorders could be studied

Limitations

1. Knowledge about contraception has not been considered
2. Number maybe increased by increasing duration of the study
3. All the parameters studied have not been compared between subjects and controls
4. Psychiatric follow up of these impulsive patients has not been made

Acknowledgement

This paper" IMPUSIVITY AMONG UNINTENDED PREGNANCIES" was written only because of the insight and support given by my guides regarding the significance of women's mental health in maintaining the health of a family and inturn the society as a whole. Sincere thanks to DR. SRINIVAS K (Associate professor, department of Obstetrics and Gynecology) and DR. PRASHANTH N R (Professor, department of Psychiatry), BANGALORE MEDICAL COLLEGE AND RESEARCH INSTITUTE. My special thanks to Mr. VISHWANATH , Statistician in the department of Community Medicine , BMCRI for assistance with methodology and statistics. Also DR.RADHIKA (Assistant professor, Department of Obstetrics and Gynecology)for her comments that greatly improved the manuscript. Thanks to all the patients who gave their valuable time and participating in the study without whom this study this would not have happened.

References

1. F.Gerald Moeller, Ernest S Barratt; American journal of psychiatry 2001; Psychiatric aspects of impulsivity; 158:1783-1793
2. Ann Furedi; Causes of unplanned pregnancy; Contraception.John L Evendn; Varieties of impulsivity; Psycho pharmacology, 146; 348-361
3. Jan Askew; Population control; Causes and Consequences of unintended pregnancies in developing countries.Carrie S; Journal of Midwifery and Womens health Unintended pregnancy consequences and solutions for a worldwide problem; 1998;43(6): 483-491.
4. Godiwala P, Appehams B M et al; Pregnancy intentionality in relation to non planning impulsivity; psychosomobstetgynaecol 2016 ;37 (4):130-136.
5. MariheNourallahpourShiadeh et al, Nourossadat Kariman, Nurs Midwifery Stud; Unwanted pregnancy and its risk factors among pregnant women in Tehran, Iran 2016;5 (3):e29740.

6. John S Santelli et al; The measurement and meaning of unintended pregnancy, 2003;35(2): 94-101.
7. Godiwala, Prachi; Appelhans, Bradley M.; Moore Simas, Tiffany A.; Xiao, Rui Sherry; Liziewski, Kathryn E.; Pagoto, Sherry L.; and Waring, Molly E., "Pregnancy Intention in Relation to Nonplanning Impulsivity" (2015). University of Massachusetts Medical School.Senior Scholars Program. Paper 240
8. Age Differences in Sensation Seeking and Impulsivity as Indexed by Behavior and Self-Report: Evidence for a Dual Systems Model Laurence Steinberg and Dustin Albert Temple University Elizabeth Cauffman University of California, Irvine Marie Banich University of Colorado Sandra Graham UCLA Jennifer Woolard Georgetown University Developmental Psychology, in press.
9. Hirschman, Elizabeth C., Innovativeness, Novelty Seeking and Consumer Creativity, Journal of Consumer Research,1980; 7:283-295.
10. Kemal Kurtulus,Huseyin Hakan Yil dirim, Bahar Yasin : Same Country, Different Ethnicity: The Role of Ethnicity on Impulse Buying , Thriving in a New World Economy pp 272-279.

Conflict of Interest: None
Source of Support: Nil

ABBREVIATIONS USED:
AI- ATTENTIONAL IMPULSIVITY
ANC- ANTENATAL CHECK UP
MI- MOTOR IMPULSIVITY
MIX- MIXED IMPULSIVITY(MORE THEN ONE TYPE OF IMPUSIVITY IS SEEN)
MTP- MEDICAL TERMINATION OF PREGNANCY
NA- NOT APPLICABLE
NI- NON IMPULSIVE
NP- NON PLANNING IMPUSIVITY
P value- PROABABILITY