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RESEARCH ARTICLE

COVID-19 PANDEMIC AND ITS FORTHCOMING IMPACT ON BIRTH RATE IN INDIA

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ABSTRACT

Background: United Nation stated on 7th May, 2020 that world is going to have a population surge in terms of sudden increase in birth rate due to lockdown enacted throughout almost all over the world to prevent the Corona virus from spreading rapidly; and it will also affect many developed as well as underdeveloped countries markedly including India. Even it has also been stated by the United Nation that India could lead among all the stated countries of the world in terms of baby boom in near future with around 20.1 millions of new births. Likewise, UNICEF has also reported that around 116 newborns could arrive globally under the shadow of COVID-19 with around 7 millions of unwanted births. Both the organizations are worried about the upcoming situation regarding required health care facilities for the increased number of newborns and their mothers. Objectives: the main objective of this study is to examine whether this statement given by the United Nation is going to be fact in case of India by analyze the desire of parenthood of individuals of India before and within a long term complete lockdown conducted to prevent COVID-19. Methods: This study has been carried out during the months of July and August of 2020 on married individuals of India with a cross-sectional study design through a web based survey using some social-networking platforms. A link of a Google-form containing a well structured dichotomous questionnaire attached with the researcher's E-mail has been posted in several social media with a well defined description. All the responds from 159 willing participants have accumulated there. All the collected qualitative data have been converted into quantitative values for required statistical analysis. Only descriptive statistics in terms of frequency and percentage has been used here to meet the objective of the study. Results: to meet the objective, individuals' desire of parenthood before and within lockdown has analyzed statistically and found that among 159 participants 34.6% wished for parenthood before lockdown whereas during lockdown it has increased to 44% of them. It is worth mentioning that during this course of lockdown many individuals (45.9%) among all the participants have changed their previous decision regarding having a baby to either positive (27.7%) or negative one (18.2%). Conclusion: this study concluded that the lockdown seemed to come into the individuals' married life as an advantage that could increase the chance of baby boom in India.

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INTRODUCTION

United Nation expressing anxiety stated that world might be going to face a sudden marked increase in birth rate due to lockdown situation that was being enacted almost throughout the world to prevent COVID-19 pandemic outbreak. UN projected on 7th may of 2020 a marked elevation in global birth rate that could be led by India with around 20.1 millions of new births.

According to UN, China (13.5 million), Nigeria(6.4 million), Pakistan (5 million), Indonesia(4 million) will also follow India with high birth rates (Hindustan Times, 7th may 2020). Similarly UNICEF has also reported that almost 116 millions of newborns are going to be arriving globally under the shadow of COVID-19 and greeted with great risk (Hindustan Times, 7th may 2020). UNICEF has also stated that lockdown due to COVID-19 can also lead to around 7 millions of unwanted births (Times of India, 7th may 2020). United Nation and UNICEF both are worried about the upcoming surge of newborns and the required health care facilities for them and their mothers during this kind of pandemic situation.

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SARS-CoV-2, a new type of corona virus, is causing a typical pneumonia type disease known as Corona virus disease (COVID-19) that primarily affects lungs and can collapse the respiratory system as well, has already caused thousands of morbidities and mortalities throughout the world since it appeared (Khan *et al.*, 2020). According to WHO, it first appeared in Wuhan, Hubei province of China in the end of the year 2019. World Health Organization came to know that it could transmit in human being with high contamination rate by man to man touch or by inhaling of droplets containing this virus. Moreover, it still has no antidote to prevent its fatal effect in human body; therefore, the only measure to control its outbreak recommended by World Health Organization is complete lockdown of states for multiple days until its flow of transmission become diminished. But due to this long term lockdown situation many new issues are arising. One of these is thought to be a sudden increase in birth rate. Dr. Sushil Sharma, Chairman of arthritis Foundation of India, also thinks that as there is a increase possibility to have unprotected sex between spouses, the family welfare system of our country can face a great difficulty (Hindustan Times, 7th may 2020).

To explain the baby boom occurred during post World War II period, Macunovich (2000) stated that baby boomers were those who born in the United States from 1946 to 1964; the total births per year became 4.3 million from 2.3 million. The study expressed that the major factor behind that baby boom was not increase in family size rather sharp decline in the proportion of women choosing to remain childless. It was also mentioned in the study that younger women of post war period were also responsible for baby boom as they were forced to be departed from the rising trend of female participation in labour market. Likewise, Doepke *et al.* (2007) portrayed an explanation of the baby boom occurred in U.S. based on increase demand of females in labour market during World War II. It further led to young women to remain out of the competition on female labour force participation with older women in terms of experience and it gave them only option to stay home and have more child instead. But in present scenario, behind the assumed baby booming there must be some different fertility factors working on it since there is no high demand of such kind of labour force participation among females. So, there must be some other factors which are being tried to be identified by several scholars. One such study has been conducted by Micelli *et al.* (2020) on Italian individuals who are in heterosexual relationship with their spouses. This study has been worked on the probable impact of COVID-19 pandemic lifestyle change on desire of parenthood of the Italian couples. This study has included 1482 respondents and showed that among 18.1% willing respondents for parenthood before lockdown 37.3% had postponed their plan due to some specific reason; on the other hand, 81.9% of unwilling respondents for parenthood before lockdown 11.5% had expressed their desire for parenthood during lockdown. This study concluded that COVID-19 situation is putting an impact on desire of parenthood but could not ascertain whether this impact would result in a substantial modification in birth rate.

Objectives: The principle objective of the study is to analyze the fluctuation in normal birth rate of India that could occur in near future due to lockdown situation. To do so, desire of parenthood of the participants before and after lockdown

situation is being considering to be taken into account. Overall, the present study is searching for the probable deviation from normal desire for parenthood due to lockdown for COVID-19 prevention on the basis of participants planning for parenthood before and during lockdown and reasons behind their decision taken. If the estimated deviation shows marked increase value then it can be said that there is a good chance of occurring baby boom in India near future due to COVID-19 situation.

MATERIALS AND METHODS

Study area and participants: This study has been conducted during the month of July and August (around the end of lockdown period in India) of 2020 on married people of India with cross-sectional study design through web based survey since conducting field based survey was impossible during lockdown for COVID-19 situation. All total 159 responds have been reported during the total phase of data collection. The reply from outside of India has not been considered for the study. All the participants have been requested to provide their short name in the questionnaire for maintaining privacy. A well prepared questionnaire with relevant attachment has been spread in different platforms of social media. This questionnaire has been posted there as a link of Google-form with all relevant description. This methodological concept has been adopted from Micelli *et al.* (2020).

Data collection: Since data collection has been conducted through web survey a well prepared questionnaire generated as Google form hyperlink has been spread through several social media application so that willing people who meets the inclusion criteria can participate simultaneously in the online survey. This hyperlink has been linked with researcher's email address where all the participants' responses have accumulated. This study is dichotomous in nature. So, the questionnaire contains some specific qualitative questions with bipolar options. Through questionnaire, participants' decision about getting parenthood and the probable reasons for taking such decision have been analyzed. Participants' decision for being conceived has been categorized in 3 ways; previously taken decision before lockdown, change of decision during lockdown and newly taken decision during lockdown. In addition, analysis of probable fluctuation in birth rate has also been done on the basis of reasons for taking such kind of decisions by the participants. To know the probable reasons some close ended binary questions have also been included in the questionnaire. Before all, participants' nationality has been considered for the study; participants must be of Indian nationality.

Data analysis: All the qualitative data has been converted into quantitative values for further analysis. Participants' decisions and reasons have been considered as individual parameters for statistical analysis. Under both the parameters there are two indicators; positive indicators and negative indicators for increasing birth rate. The percentages of these positive and negative indicators for both parameters have been assessed separately to understand the probable deviation in future birth rate due to lockdown. The previously taken decision has been considered as normal birth rate prevailed in India before COVID-19 outbreak, whereas, the change of decision as well as newly taken decision indicate the birth rate that can be affected due to

lockdown situation. In this way, deviation in birth rate in India due to COVID-19 situation has been measured.

RESULTS

The primary data basically lies on some inferential questions which are very much relevant to the study. Participants' opinion as well as decision on having parenthood has a key role in this study to ascertain upcoming probable birth rate in India which may be or may not be affected by the lockdown implemented throughout India to break the chain of transmission of COVID-19 disease. All the data based on three major questions to know participants' decision about having parenthood have been portrayed in table 1. This table describes frequency and percentage distribution of all the respondents' answers on above mentioned 3 questions where it is being seen that a good percentage of the population (34.6%) thought for having parenthood before lockdown where 18.2% of total population postponed their decision or plan by thinking of probable negative effect of lockdown on socio-economic life. And 16.4% of total population is still stick on their decision. Whereas a major portion of the population (65.4%) did not wish to get parenthood before lockdown. But due to some positive impact of lockdown on individuals' personal and marital life, most of the individuals (27.7% of total population) are now starting to think about parenthood during lockdown and that can be much significant for surge in birth rate. On the contrary 37.7% of total population still remains unchanged with their decision of not having a baby. It has also been exhibited through fig 1 that among all the individuals, who decided for having a baby before lockdown, more than half (52.7%) has decided to postpone their plan during lockdown and 47.3% has thought to continue with their plan. On the other hand, fig 2 describes that about 42.3% of the individuals, who did not think for having a baby before lockdown, starting to wish for having a baby during lockdown which is quite lesser than the percentage of postponing plan for taking a baby.

Assessment of lockdown impact on individuals' desire of parenthood has been explored in table 2 through the change of individuals' previously taken decision for getting parenthood. The change of decision might be happened due to several positive and negative factors that arose with the lockdown measure for preventing COVID-19 disease. Several factors, whether positive or negative, affected each of the individuals differently because of their different situation of life-style, physical and psychological strength and stability as well as their way of thinking. However, all the participants are grouped into four major age categories to understand the age- effect on changing decision about parenthood. In the above table it is being exhibited that 45.9% of all the participants has changed their decision regarding having parenthood during lockdown where 27.7% of all the participants has changed their negative decision about having a baby taken before lockdown into positive one during lockdown period; and 18.2% of all the participants during lockdown has postponed their decision of having a baby taken before the same. It is also very observable thing in the above table that a particular age group (31-40 years) is showing the maximum strength (55.6%) in changing of decision where 28.6% population of this age group have changed their negative decision about having parenthood into positive one during lockdown and 27.0% of the same age group have changed their decision into negative one.

On the contrary another age group (≤ 30 years) is showing a very significant picture in support of forthcoming baby boom. Around 38.1% population of this age group have changed their previous decision during lockdown and significantly a huge portion of them (31.7% participants of this age group) have started wishing for a baby during lockdown period. This age group population with their decision may impose a special impact on forthcoming birth rate in India. However, another age group (41-50 years) is showing that negative decision (29.6%) is happening in more frequency than positive one (18.5%). To measure the impact of lockdown on individuals' desire of parenthood, five major issues arisen with COVID-19 situation have been considered as five factors that can affect individuals' decision of having parenthood. Among them three factors will negatively affect it and rest two factors can positively affect the same. The percentage distribution of individuals having impact of all these five factors has been exhibited in table 3. This table is also age-group specific and states that total 66.7% of the studied population is concerned about health-care facilities in near future which can be affected by COVID-19; 76.7% is worried about economic decline or economic depression where 64.8% is afraid of getting infected by the disease. On the contrary, 39.6% population thinks that lockdown situation helped them to increase psychological intimacy with their spouses which can lead them to think of having a baby. And lastly, 44.0% of the studied population feels that due to lockdown the intensity of their sexual intercourse with their spouses has been increased which is a direct cause of getting parenthood. It has also been significantly found from the above table that all the three negative factors put highest impact on the individuals belongs to the particular age group of 31-40 years whereas both the positive factors largely affected the people of thirty and less than thirty (≤ 30 years) years of age. Relatively older age groups have also been affected by these five factors of lockdown to some extent.

The final objective of the study which is measuring of total probable increase or decrease in upcoming birth rate in India, is being shown in table 4 on the basis of participants' previously taken as well as newly taken decision of having a baby during lockdown. This table exhibits that 34.6% of the studied population previously decided to have a baby before lockdown which can be considered as a normal birth rate in India in normal situation. But with the changing situation by COVID-19 outbreak the scenario has completely changed. Due to several factors emerged from the implemented as well as important measure for preventing the transmission of Corona virus, many individuals of the studied population postponed their previously taken decision of having a baby; similarly, some of them still stick on their previous decision for getting parenthood and some have newly decided for having a baby during this situation. Altogether around 44.0% of studied population has decided to have a baby during or by lockdown situation and this percentage can be considered as the forthcoming birth rate in India.

DISCUSSION

With the long term effect of lockdown for the sake of prevention of COVID-19, a great negative impact is being seemed to be arrive in Indian economy in near future. Several aspects which, can manipulate national economical fluctuations should minutely be studied to understand which risk factors may come in near future as greater threat to

Table 1. Frequency and percentage distribution of all the respondents on the basis of above mentioned three major questions related with their decisions for getting parenthood

Decision	Have you planned for parenthood before lockdown?	Have you postponed the plan due to lockdown?	Are you starting to think of having baby during lockdown?
NA	-	104	29
Yes	55	29	44
No	104	26	60
Pre-decided	-	-	26
Total	159	159	159
	100.0%	100.0%	100.0%

Table 2. Measurement of lockdown impact on desire of parenthood through the change of individuals previously taken decision for parenthood

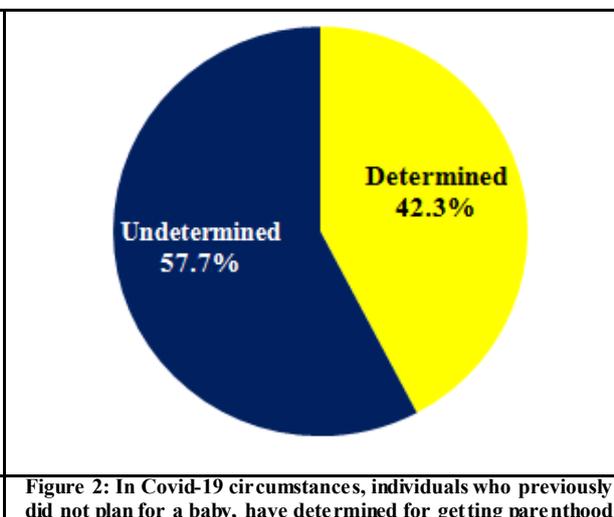
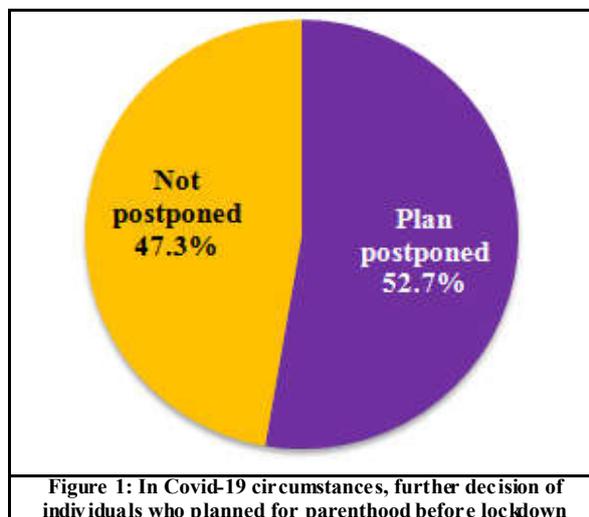
Age group in years (n)	Individuals changed previous decision	Individuals now wishing for parenthood within lockdown	Individuals now refusing parenthood within lockdown
≤30 (63)	24	20	4
31-40 (63)	35	18	17
41-50 (27)	13	5	8
>50 (6)	1	1	0
Total (159)	73	44	29
	45.9%	27.7%	18.2%

Table 3. Impact of several factors of lockdown for COVID-19 outbreak on desire of parenthood of Indian population

Age group in years	Negative impact on desire of parenthood						Positive impact on desire of parenthood			
	Health-care issue		Economic issue		Infection issue		Increase Psychological intimacy		Increase sexual intercourse	
≤30 (63)	44	69.8%	51	81.0%	43	68.3%	33	52.4%	33	52.4%
31-40 (63)	47	74.6%	54	85.7%	45	71.4%	25	39.7%	31	49.2%
41-50 (27)	14	51.9%	15	55.6%	14	51.9%	5	18.5%	6	22.2%
>50 (6)	1	16.7%	2	33.3%	1	16.7%	0	00.0%	0	00.0%
Total (159)	106	66.7%	122	76.7%	103	64.8%	63	39.6%	70	44.0%

Table 4. Comparison of total individuals having desire of parenthood before and within lockdown (n=159)

Desire of parenthood	Previously decided	Newly decided	Total	Total percentage
before lockdown	55	-	55	34.6%
within lockdown	26	44	70	44.0%



national economy. Socio-demography is also not the exception; in fact, it can be considered as the back bone of the national economy as well. Therefore, sudden as well as huge fluctuation in socio-demography is a matter of concern. According to the above mentioned statement provided by United Nation on 7th May, 2020, this study took a little attempt to understand the reality as well as rationality of the statement in alarming way. By this study it is exactly cleared now that this statement of UN was not at all baseless in Indian context. This study has clearly showed there is a little chance of surge in birth rate of India.

The comparison between the desire of parenthood of married Indians before and during lockdown has showed a marked increase ($\approx 10\%$). Micelli *et al.* (2020) also found this kind of result in Italian population although it could not be ascertained whether the lockdown impact would affect the birth rate of Italian population. Another significant finding of this study is that particular two age group viz. ≤ 30 years and 31-40 years are mostly affected by lockdown and its consequences. Among these two, lockdown affected the people under the former group (≤ 30 years) positively by enhancing their physical as well as psychological bonding

with their spouses which mostly contributed in this estimated surge in forthcoming birth rate. On the contrary, people under the age group 31-40 years are mostly afraid of the negative consequences of lockdown and postponed their plan of having parenthood although this fear is good for Indian economic health. It will control the extreme surge in Indian forthcoming birth rate to some extent.

Conclusion

By summing up all the significant findings of the study it can be concluded that Indian married young adults found some advantages in their married life by means of getting an opportunity of being more attached, mentally as well as physically, with their spouses in lockdown phase besides several multi-dimensional ravenous consequences. This one factor has increased agitation about sudden surge in birth rate of India in post COVID-19 period. This study has enlightened a crucial factor that can affect Indian economy, socio-economic life as well as lifestyle of population in forthcoming future of India.

Recommendations

This particular analytical study has been conducted to determine one of the exaggerated factors arose by the lockdown that can be harmful for national interest in post COVID-19 era. With the significant findings this study can alert the concerning authorities to take effective measures as early as possible to prevent the futuristic as well as long term effect of forthcoming baby boom in India.

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