Demographic bonus in Bali: hopes and challenges in reproductive health

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ABSTRACT

Background: Bali experienced an earlier demographic bonus and a longer duration than the national one. The demographic bonus provides both hope and challenges from a reproductive health perspective, especially in the current Covid-19 pandemic.
Methods: Extracted from various sources, analyzed and presented in the form of a description.
Result: In the period 1960-2000, the population growth rate in Bali continued to decline, but from 2000 to 2010, it increased again to 2.14. The age group below 50 years reaches 80%, the distribution is 30% under the age of 18 years, then 24% at the age 19-35 years, and 24% for the age group 35-50 years. In 2020 Bali entered the demographic bonus with the lowest dependency ratio between 42.2% - 43.3%. Bali's life expectancy rate reached 70.61 years in 2010 and is predicted to be 71.68 years in 2018. Based on the Regency/City of Bali Province's projected population in 2010-2020, the number of seniors in Bali in 2020 is 11.51%. The challenges faced include: 1. Knowledge of adolescents about reproductive health, 2. High number of the population in productive age accompanied by an understanding of reproductive health is still low. 3. Disease awareness of various pathological conditions in pregnancy is still low, coverage of contraceptive use is still low, causing pregnancy without planning, unwanted and high risk, 4. Low quality of antenatal care, 5. There are still many pregnant people, and giving birth without financing pattern, 6. Population mobility, many pregnant women who come to Bali, are not equipped with population data/identities, including family cards, 7. The increasing number of people over 60 years of age are unproductive, unhealthy, and not independent. These challenges will burden the family and or the government, especially if they do not have a good financing pattern.
Conclusion: The demographic bonus in Bali occurs earlier than in some other regions in Indonesia due to success in managing population programs. This bonus does not guarantee the success of development in the overall sense of the Covid-19 pandemic era. Bali still has to strive hard to realize its development hopes and solve existing and real challenges.

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INTRODUCTION

The population is the leading resource as well as the main target of development. Population issues are related to the number, quality and various other population indicators. All of them can affect welfare indicators. Population indicators have a strong relationship with development success. A quality population has a positive effect on development. On the other hand, a low-quality population becomes a burden for development.[1]

The demographic bonus was first introduced by economists David Bloom and David Canning of Harvard University. It is said that changes in the age structure of a country's population can promote economic growth. Furthermore, the demographic bonus occurs when the fertility rate decreases; the country's working-age population grows more significant than the dependent age.[1] Many talks about the demographic bonus as a population condition in which the number of productive people is more than the non-productive age population. A country/region's demographic bonus indicates that the number of productive age populations (aged 15-64 years) is more than the number of unproductive people (0-14 and above 65 years old.[2] The discourse on maximizing the role of the demographic bonus in achieving development success is increasing. Entering the Industrial Revolution era 4.0, the population's quality is a determining factor for its success.

Most discussed the demographic bonus related to the labor and education sector because it is directly related to workers' competitiveness in entering the global labor market.[1,3] There is no link between the demographic bonus and its effect on reproductive health. Discussing reproductive health issues and their relation to the demographic bonus has its attractions and challenges. As a country with the fourth-largest population globally, Indonesia still has many problems related to reproductive health, especially when viewed from the morbidity or mortality of pregnant and childbirth mothers

and child mortality. Bali is one of the provinces which is predicted to enter the demographic bonus earlier but still has problems regarding reproductive health.

What is the relationship between the demographic bonus and reproductive health? Can population conditions that have entered the demographic bonus be followed by an improvement in reproductive health status?

METHOD

This study fully uses secondary data collected from various publications such as the Central Bureau of Statistics, higher education institutions, and searching via the internet on related topics. The data is presented in a descriptive narrative, and the relationship between variables is carried out by using a descriptive approach as well.

RESULT AND DISCUSSION

Definition of Demographic Bonus
The demographic bonus is a condition in which the composition of the productive age population is greater than the number of non-productive age people. The people of productive age is the population in the age range of 15 years to 64 years.[1-3] The country/region's demographic bonus indicates that the number of people of productive age (aged 15-64 years) is more than the number of people who are not productive (0-14 and aged above 65 years).[1-3] Bali experiences a demographic bonus earlier and has a longer duration than the national level, so the Balinese economy has the potential to develop earlier and longer than other regions at the national level.[1]

This demographic bonus occurs due to the demographic transition process developed over the past few years and accelerated by the birth rate decline (TFR: Total Fertility Rate). TFR declined due to the family planning program, improved health status/quality, and development programs' success.[1,2]

The Bali provincial population coalition projects that Bali will experience a peak demographic bonus in the 2020-2030 period. Bali's dependency ratio was at the lowest level during this period, namely between 42.2%-43.3%.[1] The demographic

bonus is not automatically profitable. The benefits can be reaped if government policies' readiness includes strengthening investment in health, education and employment. Nevertheless, it becomes a disaster if the population of productive age is in a condition with low education levels and soft skills, is not absorbed by work and is unable to create jobs so that it is not productive and becomes a burden to the family and the country.

Also, the productive age group has high sexual activity and drive, and their reproductive function is still useful, especially for the 15-40 year age group. Although the fertility rate at the age above 35 years is decreasing due to decreasing ovarian reserve (ovarian reserve), the chances of getting pregnant in the 35-40 year age group still exist. It is not only a matter of fertility. The population of the productive age group also has a relationship with other reproductive health problems. Especially entering the age of menopause and senile.

Development of Bali Population
Data from the Bali Central Bureau of Statistics show that Bali's population growth rate has continued to decline from 1.77 since 1960 down to 1.18 in 1990, then slightly increased to 1.26 in the 1990-2000 period. However, based on the 2010 population census, it was found that the population growth rate of Bali in 2000-2010 increased again to 2,14.[4,5]

The population of Bali is increasing. The 2010 population census data reports that the total population of Bali is 3,890,757 people.[4,5] The island of Bali has approximately 5,636.66 km^2, representing 0.29 percent of Indonesia's total area. With the population of Bali reaching 3.9 million people, the population density is 690 people/km^2. The population density in Bali ranks seventh after the provinces on the island of Java.[1] The trend of Balinese population development follows two patterns.

The first pattern is a decrease in the population growth rate of Bali from 1960-1990. This pattern happens due to two main components. The first component is the TFR, which decreased from 60.0%, from 6.0 (1967-1970) to 2.3 in the 1987-1990 period.[1] The second component

is migration, which can be seen from the Bali net risen migration rate before 1990, which is always negative. This phenomenon means that Balinese who leave Bali is more than the population outside Bali who enters Bali.

The second pattern is between 1990-2010, where Bali's population's growth rate shows an increasing trend. For the years 2000-2010, the figures even exceeded the national population growth. Whereas in previous periods, the population growth rate in Bali was always lower than the national model. The increase in population growth rate is in line with the rise in TFR from 1.9 by the 2000 population census to 2.1 based on the 2010 population census. This phenomenon is due to increased positive net migration from nearly 10,000 people according to the population census in 1990 to more than 61,000 people.[1,2] On the other hand, the mortality rate has decreased as indicated by the increase in life expectancy from 64.33 years based on the 1990 population census to 72.67 years based on the 2010 population census.

The 2020 population pyramid of Bali
Based on the 2010 population census, the total population of Bali reached 3.9 million. Judging from the age group, Bali's population with an age group below 50 years gets 80% and over 50 years, around 20%. Bali's total population under 50 years consists of children or under 18 years, reaching 30%, 19-35 years old, reaching 24%, and the 35-50 years age group reaching 24% (Figure 1).[2,6]

From these data, it can also be seen that the population groups in the peri-menarche, reproductive and perimenopausal periods account for 80% of Bali's total population. Bali's population is mostly in the adolescent age group, the reproductive age group, and the peri-menopause group from reproductive health.

Reproductive health problems will still dominate health problems in Bali in the future. We can group these reproductive health problems based on the above age groups.

Reproductive Health Problems
Included in this group are health problems in school children or adolescents under

Gambar 4 Piramida Penduduk Prov. Bali SP 2010

Laki-laki / Male

Perempuan / Female
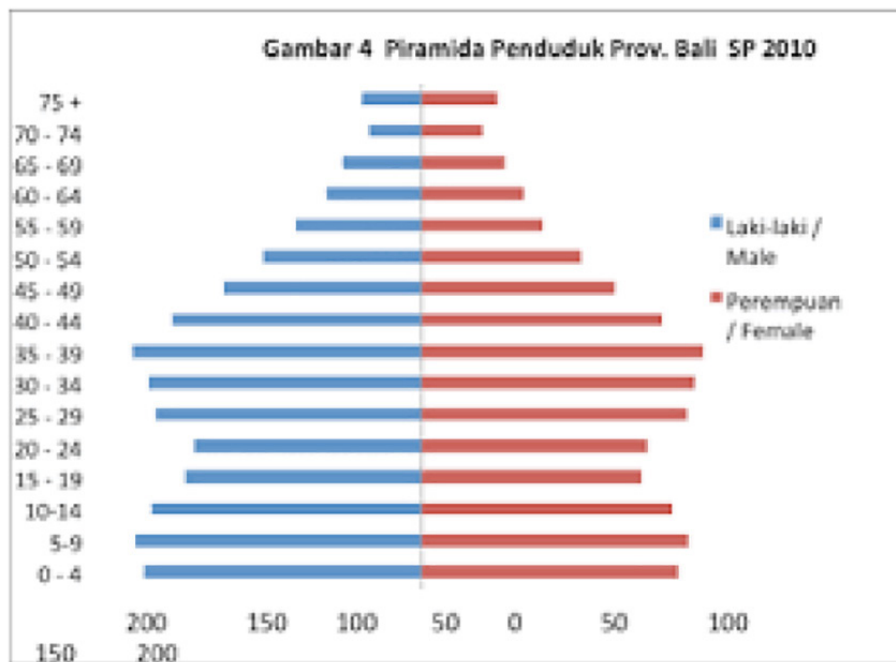
20 years of age. Suppose the adolescents do not get education about adolescent reproductive health problems properly. In that case, this age group will often find reproductive health problems even though it has entered the demographic bonus era.

The dramatic change in sexual behavior characterized by early first sexual activity, changing partners at a younger age, will cause problems such as reproductive tract infections, including sexually transmitted diseases. It will even cause problems for the next generation, such as sub-fertility, infertility and extrauterine pregnancy.[7] The results of the demographic and health survey in Indonesia in 2017 found that the average fertility rate in the 15-19 age group was 36. In rural areas, it was higher; namely, 51 compared to cities, 24.[8] Another reproductive health problem is pregnancy in adolescents with various complications. Accompanying it. Research at Sanglah General Hospital Denpasar in 2014-2015 found that the majority (58.15%) of teenage pregnancies experienced obstetric complications.[6] Various complications that can arise in teenage pregnancy include abortion, labor and preterm birth, premature rupture of membranes, even pre-eclampsia and eclampsia. Likewise, perinatal complications occurred in 39.25% of cases.[6] Not including the

complications or psychological, social and cultural and economic risks that follow pregnancy in adolescents.

Adolescents' permissive attitude to premarital sex can also lead to sexual behavior before marriage, followed by pregnancy before the wedding. Despite the old research, in the 1990s, psychology students in Badung and Tabanan districts on adolescents showed that many adolescents had permissive attitudes towards premarital sexual relations, especially for boys.[7]

In line with that, data on the youth and sports ministry's youth development index noted that the health and welfare domain index fell considerably, from 55 points to 50 points. Although other indicators remain and improve. One indicator of this situation is the worsening indicator of child marriage, from 16% to 23%.[9]

Overall, the average age of first marriage for women in Bali is around 21.54 years. Following the results of the 2012 national socio-economic survey (Susenas). This figure increased to 21.57 years in the 2015 Susenas.[12] This figure is already above the recommended age by *Badan Kependudukan dan Keluarga Berencana Nasional* (BKKBN). However, Bali still has cases of early marriage. In Susenas 2012, it was recorded that on average, each woman

aged 15-19 years gave birth to live children of 0.63 children. This number means that every 100 women aged 15-19 years give birth to 63 children on average. This figure dropped drastically to 0.07 in the 2015 Susenas.[9,12] Although this figure has decreased, the impact is enormous. Both bio-physically, socio-economically, even legally and culturally. Most of the reasons for early marriage are marriage by accident, work, encouragement from parents, and feeling old enough.[12] Characteristics of respondents who married at an early age indicated that they had a low level of education (both respondents and parents respondents), access to TV, radio and newspapers is shallow and does not work.[9,12]

A case-control study in Bali was conducted by postgraduate students at Udayana University on risk factors for adolescent pregnancy. It was found that negative peer association, opportunities for sexual intercourse, less knowledge and higher family income were found as risk factors for teenage pregnancy. Education level and exposure to pornography in adolescents are not risk factors for adolescent pregnancy.[8]

Other reproductive health problems in adolescents are related to peri-miners. Can include menstrual disorders, pain during menstruation, and premarital sex with various complications, such as reproductive tract infections including sexually transmitted diseases.

For the 20-35 year age group, Bali still needs to struggle to face the problem of maternal and child mortality. Although the figure is relatively smaller than the national model, some cases should have been avoided or even stopped. Bali still has maternal death cases caused by direct obstetric factors such as bleeding, infection and pre-eclampsia syndrome. In recent years the number of maternal deaths in Bali has fluctuated. There are still maternal deaths related to obstetric factors directly, such as bleeding and pre-eclampsia. The coverage of contraceptive use in Bali based on the 2017 IDHS is 67.3%.[12] Although it is higher than the national average of 63.3%, it is still highly likely to cause unplanned, unwanted pregnancies. Moreover, the number of unmet needs is relatively high, which is 10.7%.[12]

The trend of population development in Bali has begun to show a trend towards an increasing life expectancy. Life expectancy in Bali, according to the 2010 population census, is 70.61 years. It is predicted that Bali's life expectancy in 2018 is 71.68 years.[2,12] This condition is supported by the fact that Bali has the highest Public Health Development Index (IPKM) in Indonesia. The Public Health Development Index is a composite indicator that describes health development progress, formulated from 24 health indicators. A good IPKM score indicates a healthier society, with increased life expectancy. With this value, the Balinese have a better chance of living a long life than other provinces. Following the Balitbang Kesehatan Ministry of Health, a high IPKM rate correlates with an increased life expectancy. Based on the 2018 IPKM data released by the Health Research and Development Agency of the Ministry of Health, the IPKM figure for Bali Province reached 0.6889.[11,12] The number of seniors in 2010 was 9.67%. Based on the Regency/City of Bali Province's population projection in 2010-2020, the number of seniors in Bali in 2020 is 11.51%.[4]

Bali is also one of the world's leading tourist destinations. The status of Bali as a tourist destination has its consequences. Not only from foreign tourists but also domestic tourists. The side effect of such a Balinese group is migration. Migration can be classified as 1) Lifetime migrants if the district/city where they are born is different from the regency/city where they live now, 2) Total migrants if the regency/city where they lived last before is different from the current regency/city, 3) Migrants rise if the regency/city where they lived five years ago is different from the regency/city where they live now. Data on Bali migration statistics based on the inter-census population survey results in 2015 reported that Bali's total number was 4,148,588 people.[14,15] Of the total number of Balinese migrants, 428,602 people, are lifelong migration flows not from 9 districts/cities in Bali.[15] Population migration has its complexities regarding health problems, particularly reproductive health problems.

Globally, international travel has several purposes. Recreational and leisure purposes account for more than half (51%) of all international tourist arrivals. About 15% of international tourists report traveling for business and professional goals, and another 27% were traveling for specific purposes, such as visiting friends and relatives, religious and pilgrimage reasons, health care, and many more.[14]

Hopes and Challenges

Based on the review above, expectations and challenges should be drawn up, identified, and sought solutions.

Hopes

1. Increasing the coverage and quality of education, including vocational or vocational education, can increase the capacity for innovation and creativity. Skilled labor enables better labor absorption and the ability to create jobs.
2. It is hoped that an understanding of good reproductive health will also accompany a better education level.
3. Every pregnancy occurs at a healthy reproductive age, is planned, quality antenatal care is carried out, then the delivery is arranged and prepared in a quality health facility.
4. Healthy seniors are productive. Requires an elderly (geriatric) health service center, employing elderly workers. This involves the readiness of families to prepare health care insurance while they are still productive. For example, national health insurance. Every elder is expected to be part of the family (cultural approach) or be cared for by government or private care institutions equipped with health care insurance. For retired ASN, TNI Polri and private employees with pre-existing health care insurance (employment approach).

Challenges:

1. Making adolescents the target of reproductive health education programs, both school and community-based.
2. The population of high productive age, accompanied by knowledge of reproductive health, is still low. Disease awareness of various pathological conditions in pregnancy is still lacking.
3. Coverage of contraceptive use is still low (60%), resulting in pregnancy without planning, unwanted and high risk.
4. The quality of antenatal care is still low, especially quality.
5. Referral and financing patterns. Many pregnant women do not have a clear funding pattern, making it challenging to make referrals according to maternal and neonatal referral manuals.
6. Population mobility, many pregnant women who come to Bali, are not equipped with population data/identities, including family cards. This mobility causes the failure of the correct referral pattern for high-risk pregnant women.
7. The increasing number of people over 60 years of age are unproductive, unhealthy, and not independent. This increase will burden the family and or the government, especially if they do not have a good financing pattern.

CONCLUSION

The demographic bonus in Bali occurs earlier than in other regions in Indonesia. From a reproductive health point of view, the demographic bonus requires significant effort to have a maximum impact on health development and development in general in Bali.

Since David Bloom and David Canning first introduced it, changing a country's population's age structure can provide economic benefits. Even so, the demographic bonus does not necessarily have a positive impact on economic growth. Still to be accompanied by various other population indicators. Likewise, from the point of reproductive health. The demographic bonus requires handling reproductive health problems properly. The domination of the population of productive age requires good education and understanding of reproductive health problems. Thus, it will give birth to a generation capable of making better family planning. Starting from school, after marriage, and being able to prepare for the climacteric and old age.

DISCLOSURE

FUNDING

None

ETHICAL STATEMENT

None

AUTHOR CONTRIBUTIONS

All authors who listed in this manuscript have contributed in designing and concepting the study frameworks, data analyzing, and preparing the publish manuscript.

CONFLICT OF INTEREST

All authors declared no conflict of interest regarding this study.

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