

**KNOWLEDGE ON NATIONAL IMMUNIZATION
PROGRAM AND ITS ASSOCIATED FACTORS
AMONG PARENTS IN DUNGUN, TERENGGANU**

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By

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LIST OF ABBREVIATIONS

aOR	Adjusted Odd Ratio
CI	Confidence Interval
DTP	Diphtheria-Tetanus-Pertussis vaccine
HPV	Human Papillomavirus Vaccine
LR	Likelihood ratio
MOH	Ministry of Health
NIP	National Immunization Programme
SDG	Sustainable Development Goals
SIA	Supplemental Immunization Activities
OR	Odd Ratio
VIF	Variance Inflation Factors
VPD	Vaccine-preventable diseases
WHO	World Health Organization

ABSTRAK

PENGETAHUAN TENTANG PROGRAM IMUNISASI KEBANGSAAN DAN FAKTOR-FAKTOR YANG BERKAITAN DI KALANGAN IBU BAPA DI DUNGUN, TEREANGANU

Latar belakang: Dalam beberapa tahun kebelakangan ini, masih ada kanak-kanak yang tidak divaksinasi, dan wabak penyakit cegahan vaksin masih berlaku. Situasi ini terus berlaku walaupun mempunyai program imunisasi kebangsaan yang sangat baik. Terdapat peredaran maklumat yang salah di internet serta sumber lain mengenai keselamatan vaksin. Akibatnya, ini menimbulkan persepsi negatif dan dengan itu mempengaruhi keputusan di kalangan ibu bapa untuk memberi vaksin kepada anak-anak mereka. Oleh itu, pengetahuan ibu bapa mengenai program imunisasi juga telah mempengaruhi kepatuhan pengambilan imunisasi kerana ibu bapa adalah pembuat keputusan utama. Maklumat yang diperlukan mengenai ciri sosio-demografi ibu bapa dan pengetahuan mengenai program imunisasi akan membolehkan mewujudkan intervensi yang berjaya untuk kesihatan awam.

Objektif: Matlamat projek ini adalah untuk mengkaji tahap pengetahuan mengenai Program Imunisasi Kebangsaan dan untuk mengetahui faktor-faktor yang berkaitan dengan pengetahuan lemah berkenaan immunisasi di kalangan ibu bapa di Dungun, Terengganu.

Metodologi: Ini adalah kajian keratan rentas. Data dikumpulkan menggunakan soal selidik yang disahkan berpandukan pewawancara. Seramai 404 responden dipilih dari kaedah persampelan rawak sistematik dari dari setiap klinik kesihatan di Dungun. Dari 404 responden yang dipilih hanya 375 yang bersetuju untuk mengambil bahagian

dalam kajian ini. Analisis deskriptif, regresi logistik sederhana dan pelbagai digunakan untuk menguji objektif menggunakan IBM SPSS versi 24.0.

Keputusan: Majoriti responden (50.4%) dikategorikan mempunyai pengetahuan yang kurang baik mengenai Program Imunisasi Kebangsaan manakala 186 responden (49.6%) dikategorikan mempunyai pengetahuan yang baik mengenai Program Imunisasi Kebangsaan berdasarkan jumlah markah mereka. Faktor-faktor yang didapati berkaitan dengan pengetahuan yang lemah adalah status pendidikan rendah (aOR = 1.92; 95% CI: 1.25,2.95; p = 0.003) dan kumpulan umur ibu bapa berumur 30-40 tahun (aOR = 0.56; 95% CI: 0.34 , 0.93; p = 0.027).

Kesimpulan: Kajian ini menunjukkan bahawa usaha masih diperlukan untuk meningkatkan pengetahuan ibu bapa mengenai kesedaran imunisasi kanak-kanak. Berdasarkan kajian ini, majoriti responden masih mempunyai pengetahuan yang kurang baik mengenai program imunisasi di Malaysia. Hasil kajian menunjukkan bahawa usia ibu bapa dan tahap pendidikan mereka banyak dikaitkan dengan pengetahuan yang kurang baik mengenai program imunisasi. Program pendidikan atau kempen imunisasi yang berkesan harus dirancang untuk menasarkkan populasi berisiko tinggi.

KATA KUNCI: Ibu bapa, Imunisasi kanak-kanak, Pengetahuan, Faktor yang berkaitan, Malaysia

ABSTRACT

KNOWLEDGE ON NATIONAL IMMUNIZATION PROGRAM AND ITS ASSOCIATED FACTORS AMONG PARENTS IN DUNGUN, TERENGGANU

Background: In recent years, children are still unvaccinated, and vaccine-preventable disease outbreaks still occur. These situations remain despite an excellent national immunisation programme. Misinformation circulated on the internet as well as other outlets about vaccine safety. Thus, parental knowledge of immunisation programmes also affected immunisation uptake compliance, as parents are the primary decision-makers. Necessary information on parents' socio-demographic characteristics and knowledge of immunisation programmes will enable successful public health intervention.

Objective: This project aimed to determine the levels of knowledge on the National Immunization Programme (NIP) and to determine the associated factors for the poor knowledge among parents in Dungun, Terengganu.

Methodology: This was a cross-sectional study. Data was collected using an interviewer-guided validated questionnaire. There are 404 respondents selected from a systematic random sampling method from each health clinics in Dungun. From 404 respondents selected, only 375 agreed to participate in this study. Descriptive analysis, simple and multiple logistic regression were used to test the objectives using IBM SPSS version 24.0.

Result: Majority of the respondents (50.4%) were categorized as having poor knowledge on National Immunization Programme while 186 respondents (49.6%) were categorized as having good knowledge on National Immunization Programme

based on their total mark score. Factors that found to be significantly associated with poor knowledge were low educational status (aOR= 1.92; 95% CI: 1.25,2.95; p= 0.003) and parents age group 30-40 years old (aOR= 0.56; 95% CI: 0.34,0.93; p= 0.027).

Conclusion: This study revealed that efforts are still required to enhance parents' knowledge regarding childhood immunization awareness. Based on this study majority of the respondent still have poor knowledge regarding immunization program in Malaysia. The result has shown that the age of parents and their level of education are significantly associated with poor knowledge regarding immunization program. Effective education programs or immunization campaigns shall be designed to target high-risk populations.

KEYWORDS: Parents, Childhood immunizations, Knowledge, Factors associated, Malaysia.

CHAPTER 1

INTRODUCTION

1.1 Background

The future of any nation or community belongs to the children. This fact has, therefore led to the focus of public health on reducing mortality and morbidity to nurture, preserve, and ensure the continuity of humans. By ensuring that children are safe from deaths caused by vaccine-preventable diseases, public health can achieve these objectives. Immunization is a process to make a person resistant or immune to an infectious disease by the administration of vaccines. The vaccine will stimulate a person's immune system to protect against specific infections.

Active immunization involves stimulating the immune system in the body to produce antibodies to protect against infection. In contrast, passive immunization consists of providing temporary protection through the administration of an exogenously generated antibody, such as immunoglobulin (Baxter, 2007). Immunization services are usually delivered via two main strategies, namely, routine immunization (RI) and supplemental immunization activities (SIAs). RI is known as the regular provision of immunization services for infants and children under a supervised programme by the administration of vaccines (antigens) during a planned treatment while SIAs are usually target driven immunization programmes for all children in a defined age group with the set goal of reaching those at high risk (Chakrabarti *et al.*, 2019).

The immunization programmes will protect the community by reducing the person to person transmission of disease via what is known as herd immunity. Effective herd immunity requires coverage of 75-95% immunization of the population (Vetter *et al.*, 2018). So, it is a proven, cost-effective public health intervention that had prevented life-threatening infectious diseases in children all over the world (Stein Zamir and Israeli, 2017). The achievement of the immunization programme is the eradication of smallpox in 1980 (Hardt *et al.*, 2016) and polio in 2015 (Davis and Mbabazi, 2017).

Immunization is the key to achieve the target of the Sustainable Development Goals (SDG) in 2030 as it is explicitly included under target 3.8 and 3.b (indicator 3.b.1). This is seen from the aim to provide financial risk protection, access to affordable, safe, effective as well as high-quality medicines and vaccines, not to mention quality essential healthcare services for all as included in the proposed universal health coverage under target 3.8 of the SDG (UNICEF, 2018). Indications of child immunization are monitored under the child health coverage index.

This coverage is gauged by the percentage of one-year-old children who have received three doses of diphtheria-tetanus-pertussis immunizations (Hogan *et al.*, 2018). Meanwhile, the 3.b.1 indicator for the 3.b target, monitors the proportion of the target population covered by all vaccines included in their national programmes (UNICEF, 2018). Currently in Malaysia, this indicator monitors the coverage of diphtheria and tetanus toxoid with the pertussis-containing vaccine (third dose), coverage of measles-containing vaccine (second dose) and coverage of human papillomavirus vaccine (last dose in the immunization schedule).

1.2 Immunization Programmes

The World Health Assembly (WHA) of the World Health Organization (WHO) established the Expanded Programme on Immunization (EPI) in May 1974. This programme was recommended every member states of WHO to expand the coverage of immunizations and strengthen the surveillance programme against six life-threatening or disabling diseases which are poliomyelitis, tuberculosis, diphtheria, pertussis, measles and tetanus (Cherian and Mantel, 2020). In May 2012, the WHA endorsed The Global Vaccine Action Plan 2011-2020 which set the direction for "Decade of Vaccine" through delivery universal access to immunization.

The goal for this decade is to achieve a world free of poliomyelitis by 2014, interrupt the wild poliovirus transmission globally and achieve the eradication of poliomyelitis by 2018. This document targets to achieve the elimination of Neonatal Tetanus, Measles and Rubella or Congenital Rubella in all WHO regions by 2015. Other than that by 2020, the goal of this document to reach 90 % national immunization coverage in every region, district and community (World Health Organization, 2016).

In Malaysia, the immunization programme started in the 1950s. It was included in the Maternal & Child Health Programmes (MCH). For children of Malaysian nationality under 15 years old, their immunizations are fully subsidised by the government (Chan *et al.*, 2018). Vaccines given under this programme are Bacille Calmette Guérin vaccine (BCG), hepatitis B vaccine (HBV), diphtheria-tetanus-pertussis vaccine (DTP), poliomyelitis vaccine, Haemophilus influenza type b vaccine (Hib), and human papillomavirus vaccine (HPV) (Hattasingh *et al.*, 2016). The level

of immunization coverage is between 94% to 98% each year, which are generally above the level for herd immunity (Chan *et al.*, 2018).

1.3 Vaccine hesitancy among parents

Despite being recognised as one of the most successful public health measures in improving the health of the children, immunization is perceived as unnecessary and harmful by some parents. Currently, there are four categories of parents who are identified according to their actions or attitudes toward immunization. First is the "accepter" who agrees without question, then the "vaccine-hesitant" who accepts immunization but still has doubts regarding their children's immunization, the "late vaccinator" who purposely delays their children immunization and the "rejecter" who rejects the immunization of their children altogether (Dube *et al.*, 2013).

Most parents hesitate to vaccinate their children due to inadequate knowledge regarding immunization programmes and immunization schedules. Some of the parents believe that one dose of immunization is enough for their children. Adverse media publicity and proper understanding regarding immunization by health care providers are some of the factors that may influence the parents' decision to vaccinate their children or not. Another reason against immunization is the parental belief that homoeopathic alternative and natural immunity are adequate to give protection to their children (Smith *et al.*, 2017).

Health education regarding the importance of immunization programmes should be tailored to address the fallacies surrounding immunization. As many of the anti-vaccine message delivered by an influential figure, celebrity Immunization champion must be identified to communicate the importance of immunization programmes. Health care providers must also display unwavering confidence in the safety and efficacy of immunization. They must then translate this confidence into a strong recommendation, as a physician's recommendation is frequently cited as the reason parents choose to vaccinate their children (Kestenbaum and Feemster, 2015).

1.4 Statement of problems

In recent years, there are still unvaccinated children and outbreaks of vaccine-preventable diseases still occur. These situations continue to happen despite having an excellent national immunization programme (Mohd Rohaizat *et al.*, 2019). There has been a circulation of misinformation on the internet as well as other sources regarding the safety of the vaccine. Consequently, it creates a negative perception and hence, affects the decision among parents to vaccinate their children. Thus, parental knowledge of immunization programmes has also affected the compliance of immunization uptake as parents are the primary decision-makers (Ooi *et al.*, 2019).

Necessary information regarding socio-demographic characteristics of parents and knowledge toward immunization programmes will enable the creation of successful intervention for public health. Unfortunately, this kind of information is still limited in Dungun. A report from the Communicable Disease Control Unit (2020) also indicates that there has been an increasing trend of VPD infections from 2016 to 2018.

1.5 Rationale

Only a few studies were done before this in Malaysia, despite the rising numbers of the anti-vaccine movement as well as the spread of vaccine-preventable diseases. Both problems have become public health challenges in Malaysia. The determination of knowledge towards immunization programmes and its associated factors are crucial to address elements of vaccine hesitancy. Furthermore, via this study the knowledge barrier towards vaccine acceptance can be identified.

This study also creates a basis to develop a proper educational programme and immunization awareness in the community. A behavioural approach with an adequate understanding of social background and knowledge of immunization becomes a major priority to create mass awareness and acceptance of immunization programmes in the community.

1.6 Research questions

- i. What are the levels of knowledge on immunization programmes among parents in Dungun, Terengganu?
- ii. What are the factors associated with poor knowledge on the National Immunization Programme (NIP) among parents in Dungun, Terengganu?