

**EFFECTIVENESS OF APPLICATION OF BIOSTATISTICS KNOWLEDGE OF  
MULTICULTURAL GROUPS DATABASE BANK**

Yueh-Chin Chung, Ph. D\*

Department of Nursing, Central Taiwan University of Science and Technology, Taichung, Taiwan.

\*Corresponding Author: Yueh-Chin Chung, Ph. D

Department of Nursing, Central Taiwan University of Science and Technology, Taichung, Taiwan.

Article Received on 21/12/2022

Article Revised on 11/01/2023

Article Accepted on 31/01/2023

**ABSTRACT**

**Background:** Know-how are the basis of modern national competitive advantage, in order to become the best professional field, we must establish their own competitiveness in the knowledge and expertise in the field. The United Nations has stated that the "Convention on the elimination of all forms of racial discrimination" can keep pace with the changes in population and diverse multicultural groups, strengthen a country's resilience and responsiveness to various challenges, and promote the true development of multicultural groups. International closely cooperates and to develop integrated digital professional fields, the cumulative health knowledge base in order to stimulate research medical and health. The digital learning, conduct research agenda to improve multicultural groups of medical and health information database bank research capacity, enhances multicultural groups of knowledge development cultivation and application of competitiveness. **Purposes:** The purpose of this research is explained the a medical and health statistical knowledge research database for a multi-ethnic model, as the information needs of medical staff, and to form how to apply medical and health care professional and students of knowledge. **Methods:** This research constructs a research database bank, which is building of seven steps: 1. research design; 2. web page structure establishment and database system establishment; 3. collect data; 4. organize data; 5. analyze data; 6. write report; 7. application and promotion. **Results:** The satisfaction of 50 students using the website platform of application of biostatistics knowledge of multicultural groups database bank, with an average satisfaction rate of 4.85 (0.30). From 2017 to 2019, Taoyuan City had the largest number of Aboriginal births, the second was New Taipei City, the third was Hualien City. The number of births of aboriginal babies is highest in Taoyuan City; the number of births from October to December is the highest. According to the age of birth mothers, the number of births of aboriginal babies is 25-29 years old, followed by 30-34 years old, and Taoyuan City is 25-29 years old. Hualien City has the largest number of aborigine deaths, the second was Taitung City, the third was Pingtung City. Hualien City has the largest aboriginal population and the largest number of co-living households. In 2017, the educational attainment of aborigine household heads was below elementary school graduation. In 2018-2019, the most high school graduates. In 1949, 303,707 of provincial ethnic group (excluding military registration) accounted for the largest number. In 2016, Taoyuan City had the largest Hakka population in the Taiwan, the second was New Taipei City, the third was Taichung City. In 1926, Fujian Province had the largest Helao ethnic group in Taiwan; Quanzhou had the largest number; the second was Zhangzhou. From 2017 to 2019, according to statistics on the number of foreign spouses who acquired and naturalized their nationality, Vietnam was the largest; the second was Indonesia; the third was Philippines. From January 1987 to the end of August 2020, according to statistics on the number of foreigners, foreign spouses, and mainland (including Hong Kong and Macao) spouses in each county and city, New Taipei City has the largest number; the second was Kaohsiung City; the third was Taipei City. **Conclusion:** The multicultural group of medical and health statistical knowledge research training system and management consultants of the company's information database bank now. We can establish a comprehensive of new medical information database system for teachers and students in academia in future.

**KEYWORDS:** multicultural group, medical and health, statistics, database bank.**INTRODUCTION**

The advancement and rapid development of information technology has become extremely important in a turbulent environment. How companies use existing information for analysis and prediction has become one

of the key factors in the business process. Therefore, the topic of knowledge mining in databases has gradually received attention. For enterprises, market information has been accumulated over time to form a large amount of information, which is often stored in a database. If it

can be analyzed in real time and quickly respond to any activities and decisions, it will be able to better grasp the pulse of the market and trend. The application of databases has become very popular in recent years. In order to maintain their own commercial advantages, effective strengthening and management of the use of databases is the link for enterprises to maintain their competitive advantages. However, in order to collect market information conveniently and effectively, the establishment of knowledge bases can also maintain competition the advantages.

According to regulation 4 of the United Nations Convention on the Elimination of All Forms of Racial Discrimination: "States parties shall punish by law any claim that a particular race or ethnic group is superior or inferior or attempt to justify racial discrimination or hate language", the intention is to use government intervention to balance the unequal power relations between the dominant and disadvantaged groups. This legal design is also in line with the core spirit of the republic. In addition to the negative aspect of eliminating discrimination, the positive aspect allows the dominant ethnic group to give up some privileges in exchange for other ethnic groups agreeing to cooperate.<sup>[1]</sup> According to regulation 26 of the International Covenant on Civil and Political Rights: "All persons are equal before the law and are entitled without discrimination to the equal protection of the law. The law shall prohibit any discrimination and guarantee to all persons equal and effective protection against discrimination on any grounds such as race, color, sex, language, religion, political or other opinion, national or social origin, property, birth or other status." regulation 27: "Those whose race, In countries where there are religious or linguistic minorities, such minorities shall not be denied the right to enjoy their own culture, to profess and practice their own religion or to use their own language in common with other members of their group" <sup>[2]</sup>. Zhu (2008) <sup>[3]</sup> believes that: "The policy of multiculturalism emphasizes that all immigrant groups have the right to display, develop, and share ethnic cultural traditions, and participate in the construction of the country's political, economic, and cultural life."<sup>[3]</sup> Therefore, the mainstream society must follow the principle of difference, so that minority groups have equal opportunities and rights to participate in social affairs.

Taiwan is originally a beautiful treasure island where diverse ethnic groups coexist. First there were aboriginal ethnic groups, and then they migrated from different countries to different ethnic groups in different periods, and modern immigrants to Taiwan due to business, research, and interracial marriage. Taiwan is a country with different cultures. A society of diverse ethnic groups and cultures, cultural diversity enriches the life and culture of Taiwanese. Culture is the inheritance of wisdom, and it is presented in life, so that it has value and vitality. Diversity means respecting differences and allowing a variety of voices, perspectives and values to

be represented. The term culture has a wide range of meanings, including holding different worldviews, handling different languages, and having different life styles, which all represent different cultures. It can also be defined as a group of people's plans for survival and adaptation in their environment. . Different cultures have their own cultural systems, and their values cannot be denied, and are shared and shared by members of the society. Everyone is a diverse subject with diverse cultural identities. A person can be a subject with racial background and class attributes, gender and sexual orientation, communitarianism, feminism or other beliefs at the same time. Regarding multiculturalism.<sup>[3]</sup> believes that there are at least four major policy propositions as follows: 1. Culture is the root of what makes a human being: multiculturalists believe that the development and formation of individual personality is determined by the specific growth of the individual; Cultural environment influences and molds. Therefore, cultural symbols displayed at the level of individual personality are the foundation of individual survival and cannot be separated from self-identity; cultural identification is the basis for the unity and identity formation of ethnic groups in the process of social adaptation. 2. The cultures of different immigrant groups should be respected: Based on the principle of equality and reciprocity, the cultures of ethnic minorities and border groups have their own independent value, and the state should restore and respect the ethnic and cultural identity rights of ethnic minorities. 3. The cultural equality rights of ethnic minorities should be maintained: multiculturalism opposes ethnic discrimination, cultural hegemony and cultural imperialism of mainstream culture. Multiculturalism supports the theory of cultural relativism. There is no distinction between high and low ethnic cultures. Different cultures represent different social adaptations, and different understandings and interpretations developed in response to social adaptations. 4. The cultural practice rights of ethnic minorities should be implemented: Although the cultural identity of ethnic minorities is now recognized to be equal to the status and meaning of mainstream culture, discrimination is an undeniable fact in history. Therefore, effective measures must be taken based on the principle of difference, to improve the disadvantaged status of ethnic minorities in the social system, so that they can enjoy their due rights.

In 1997, regulation 10 No 9 of my country's "Constitution" added the wording of multiculturalism, which read: "The country affirms multiculturalism, and actively maintains and develops the languages and cultures of indigenous peoples." Shows the following two meanings: 1. It is equivalent to identifying Taiwan as a sovereign country composed of multiple ethnic groups. 2.The concept of "multiculturalism" appears. Taiwan has always been a multicultural society composed of multiple ethnic groups. The constitution and the party platform used to take into account the four major ethnic groups (aboriginal people, people from

other provinces, Hakka people, and Helo people). In recent years, new immigrant women who have taken root in Taiwan due to marriage have become the fifth ethnic group in Taiwan, making Taiwan The multiculturalism in China has a new outline, which also makes the government pay more attention to the culture and rights of different ethnic groups.<sup>[4]</sup> The largest ethnic group of Taiwanese residents is the Han, accounting for about 97% of the total population. The other 2% are Taiwanese aborigines of 16 ethnic groups, and the other 1% includes ethnic minorities from mainland China, spouses from Hong Kong, Macao, and foreign spouses.

Medical and health personnel must first obtain descriptive statistics such as the number of multi-ethnic groups, and then assess their needs, understand various social welfare policies, resource agencies, and community referral resources, and establish partnerships. After discovering their health problems, strengths, and unmet needs, for planning and implementation, partnerships should be established with diverse ethnic groups and stakeholders involved in cooperation. During the planning and implementation process, diverse ethnic groups should be empowered, Participate in their health decision-making, activate, import, and secure social resources to assist ethnic groups in self-determination, self-reliance, and achieving and maintaining an acceptable quality of life. The last is to evaluate the effectiveness, evaluate the implementation of the nursing plan, and whether it can solve the health problems and needs of the multi-ethnic group. Because multi-ethnic groups often have multiple stress and health problems, and are easily affected by environmental changes, the nursing process should be cyclical, and reassessment should be carried out after a period of time, and another cycle should be repeated. To be able to take care of diverse ethnic groups, medical and health personnel must play multiple roles: 1. After discovering a case, they should encourage the diverse ethnic groups to obtain health services, or develop health programs that meet their needs, that is, "health educators." 2. It should guide them in the knowledge of disease prevention and health promotion, and provide counseling to increase the sense of control of multi-ethnic groups, enhance their abilities, and help clarify their strengths and resources, that is, "consultants". 3. Provide direct health services for multiple ethnic groups in different community areas, that is, "direct care providers". 4. Must work with communities, municipalities, and national groups to develop and implement health policies, i.e., "group health advocates." 5. It is necessary to cooperate with community members, through community assessment, guide the community to understand the problems of multi-ethnic groups in the community, develop health care plans for ethnic groups, and jointly implement and evaluate them to assist community development, that is, "community assessors and developers". 6. Able to continuously monitor the health status of diverse ethnic groups and evaluate the effectiveness of health care, that is, "health monitors and evaluators". 7. Need to be

familiar with social welfare resources and institutional information, and speak out for the rights and interests of multi-ethnic cases, that is, "rights advocates". 8. Create health plans for diverse ethnic groups according to their different needs, that is, "health planners". 9. Knowing the importance of social resources to diverse ethnic groups, medical and health personnel participate in the development and formulation of relevant health policies to ensure friendly health policies, that is, "health policy promoters".<sup>[5]</sup>

The purpose of this research project is: 1. Build a multi-ethnic medical and health statistics knowledge base website, establish a database, transfer knowledge, create value, know how, and hope to achieve real-time learning and systematic learning functions. 2. Research results of medical and health statistical knowledge of multi-ethnic groups, providing effective policy reference: through implementation experience, research and development of operation procedures, establishment of knowledge research database, and analysis of results with data from this database, and cooperation with strategic alliance units, hoping to achieve Integrate professional human and social capital, promote relevant work content, research relevant activation issues, and provide a network platform for the website, provide relevant research with common information, actively promote and create relevant issues, in order to shape a high-quality research and development discussion network Environment, benefit experience sharing and benefit diffusion. Actively promote the database support system, and at the same time establish a medical system information integration content platform to help improve the professional functions of multi-ethnic medical and health statistics, and effectively enhance the activation of medical resources. 3. Linking with other medical resources and knowledge bases: through this system, it can be combined with the integration of multi-ethnic medical and health statistical professional knowledge information systems to expand the research and development network environment.

## MATERIALS AND METHODS

The multi-ethnic medical and health statistical knowledge base of this project is based on information technology to support organizational knowledge innovation, storage retrieval, transfer and application systems. The information system has data processing, database management, and support integration capabilities. 1. Data retrieval: Based on the original data established by the census data, the multi-ethnic organization and medical statistics are used as index values to extract reliable data from a large amount of data and analyze them. 2. Research publication: The main function menu is group data query, advanced statistical query, paper browsing, popular ranking, web page function version switching, switching school departments and postgraduate website functions, so as to achieve the effect of group navigation.

## RESULTS

### Satisfaction with using and constructing knowledge database website platform

The satisfaction with the website platform of the preventive health care knowledge database was used. There were 50 people in the research sample, 40 of whom were female (80.0%), and the average score was 4.85 (0.30), the highest average was "My learning gains

in the course of the platform." (M=4.92), and the second was "I think the interactive platform is conducive to real time knowledge sharing and problem solving." (M=4.88); "I think the interactive platform promotes the courses in depth." (M=4.88); "I think the platform is user-friendly" (M=4.88); while the lowest average was "Online learning is not limited by time and space." (M=4.78) (Table 1).

**Table 1: Degree of satisfaction with the Biostatistics Knowledge of Multicultural Groups Database Bank (N=50).**

Variables	N(%)					Mean (standard Deviation)
	Very dissatisfied	Dissatisfied	No opinion	Satisfied	Very satisfied	
1. I think the interactive platform makes learning the course more interesting.	0(0.0)	0(0.0)	0(0.0)	8(16.0)	42(84.0)	4.84(0.31)
2. I think the interactive platform is conducive to real time knowledge sharing and problem solving.	0(0.0)	0(0.0)	0(0.0)	6(12.0)	44(88.0)	4.88(0.37)
3. I think the interactive platform promotes the courses in depth.	0(0.0)	0(0.0)	1(2.0)	7(14.0)	42(84.0)	4.88(0.37)
4. I think the platform is user-friendly	0(0.0)	0(0.0)	2(4.0)	2 (4.0)	46(92.0)	4.88(0.37)
5. The platform helps me learn the knowledge and skills I want to learn more.	0(0.0)	0(0.0)	2(4.0)	5(10.0)	43(86.0)	4.82(0.30)
6. Online learning is not limited by time and space.	0(0.0)	0(0.0)	3(6.0)	5(10.0)	42(84.0)	4.78(0.28)
7. I am willing to access the platform as much as possible.	0(0.0)	0(0.0)	0(0.0)	10(20.0)	40(80.0)	4.80(0.34)
8. My learning gains in the course of the platform.	0(0.0)	0(0.0)	0(0.0)	4(8.0)	46(92.0)	4.92(0.41)
Mean value (standard deviation)	4.85(0.30)					

**Analyze and compare the information of the five major ethnic groups (Aboriginal people, People from other provinces, Hakka people, Holo people, and New residents)**

#### Aboriginal people

From 2017 to 2019, Hualien County had the largest number of aborigines and the largest number of co-living households. The total number of births of aboriginal babies is highest in Taoyuan City; the second was New Taipei City; the third was Hualien County; the number of births from October to December is the highest, and males are greater than females. According to the age of birth mothers, the number of Aboriginal babies born is 25-29 years old; the second was 30-34 years old; Taoyuan City is 25-29 years old. Hualien County has the largest number of aborigine deaths; the second was Taitung County; the third was Pingtung County. In 2017, the education level of the aborigine household heads was the highest among elementary school graduates; the second was high school graduates. From 2018 to 2019, those who graduated from high school were the most; the second was those who had graduated from elementary school. From 2017 to 2019, the number of aborigines living in each county and city, Taitung County has the largest number of aborigines in the plains; the second was Hualien County; the third was Taoyuan City. Hualien County has the most mountainous aborigines; the second was Pingtung County; the third was Taoyuan City; from 2018 to 2019, Pingtung County has the most

mountain aborigines; the second was Hualien County; the third was Taoyuan City. Marriage status of Aboriginal people in 2019 were 291,423 unmarried; 159,750 males; 131,673 females; 185,809 couples; 86,473 males; 99,336 females.

#### People from other provinces

From 1945 to 1956, the total number of ethnic groups in other provinces (excluding military registration) was 641,992, with 303,707 in 1949 accounting for the largest number, the second have 98,580 in 1948.

#### Hakka people

In 2016, the total Hakka population in Taiwan was 4,537,000, with Taoyuan City having the largest population of 853,000; the second was New Taipei City having 637,000; and the third was Taichung City having 483,000.

#### Holo people

In 1926, among the Helao ethnic group in Taiwan, Fujian Province had the largest number of 3,116,400 people; Quanzhou had the largest number of 168,400 people; Zhangzhou had the second number of 1,319,500 people. Sanyi area has the largest population of 686,700; the second of Tong'an area has 553,100; the third of Anxi area has 441,600.



### New residents

From 2017 to 2019, statistics on the number of foreign spouses who acquired and naturalized their nationality showed that Vietnam was the largest; the second was Indonesia; and the third was Philippines. From January 1987 to the end of August 2020, according to statistics on the number of foreigners, foreign spouses, and mainland (including Hong Kong and Macao) spouses in each county and city, New Taipei City has the largest number; the second was Kaohsiung City; the third was Taipei City. From 2017 to the beginning of 2019, the statistics of the original nationality (region) of the household registration were set. The nationals of the Republic of China were the most approved for entry and settlement; the second was the approval of the people of the mainland area; the third was the approval of the people of Southeast Asian nationality.

### CONCLUSIONS

#### Industrial applicability

1. Apply the longitudinal research method to database research, understand the medical and health statistics of multi-ethnic groups, transform the information and knowledge discovered after data mining into future decision-making and implementation advantages, effectively solve problems, and give full play to the true application of knowledge. Some value can also be provided to the industry for education and training, so as to provide reference for medical care personnel and government governance.

2. Provide students with the knowledge database website platform to extract information from a large number of databases, use the data query mode and convert it into an understandable structure for further use, generate data and content, and publish relevant research results.

#### The value of promotion and application

1. The title of this industry-university cooperation project is "application of biostatistics knowledge of multicultural groups database bank ". The service objects of this platform system can be teachers and students in colleges and universities. It provides a wealth of teaching materials for research and has substantial contributions.

2. The multi-ethnic medical and health statistical knowledge base system can also be provided to the industry for education and training.

### ACKNOWLEDGMENTS

This study was supported by the Central Taiwan University of Science and Technology (CTU111-PC-002).

### REFERENCES

1. Sun W, Xu Y. The theoretical basis and system design of ethnic group impact assessment. *Civil Service Quarterly*, 2017; 9(4)" 29-68.
2. United Nations (2023, January 26). International Covenant on Civil and Political Rights. Available

from [http://www.worldcitizens.org.tw/awc2010/ch/Declaration/1966\\_2a.htm](http://www.worldcitizens.org.tw/awc2010/ch/Declaration/1966_2a.htm).

3. Zhu R. Globalization and the Concern of Human Rights, Law and Sociology in Taiwanese Society, 2008, Taipei: Sanmin.
4. Executive Yuan (2020, March 2). Brief Introduction to the National Conditions of the Republic of China: People. Available from <https://www.ey.gov.tw/state/99B2E89521FC31E1/2820610c-e97f-4d33-aa1e-e7b15222e45a>.
5. Chen JM. Community Health Care (8th Edition), 2022, Taipei: Huaxing.