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Special Report: School Meal Program**Cultural Flavors Spice Up Japanese School Meals: A Perspective from Vietnamese Dietitians
No. 3 in a Series**

Giang Nguyen Huong¹, Noriko Sumida², Hitomi Takeichi², Phuong Nguyen Mai¹,
Diep Nguyen Van¹, Yoko Ozaki³, Tamami Kawakami³, Mayu Funahashi³, Hitoshi Iizuka^{2,3}

¹*Jumonji University, Saitama, Japan*

²*Asian Nutrition and Food Culture Research Center, Jumonji University*

³*Quest Computer, Tokyo, Japan*

Cultural features create a unique identity for each country and one of the ways it expressed is through the foods we eat. We learn about our culture from many sources and school meals are no exception.

In Japan, school meals designed not only to provide children with healthy and delicious meals but also to teach children about cultural traditions. This broad perspective on food and nutrition helps instill in children a sense of gratitude for the food they are eating and an appreciation for and interest in its origins. In addition, it is likely responsible for the remarkably low levels of food waste.

Japan places a high value on food and nutrition education in schools, and correspondingly also on the professionals who provide this instruction to students. Food culture is one of the aspects of food and nutrition education conducted by nutrition teachers/school dietitians working in tandem with teachers of other subjects. For seasonal events, they plan special meals to celebrate, which are called “Gyouji shoku” in Japanese. Along with the meal for the event, they also tell some story or draw some cartoons to explain the meaning of that day and the reason for eating that particular food.

As an example, Ms. Sumida, a co-author of this

article who is a nutrition teacher in a city in the western part of Japan, used the school lunch for the study of the Japanese traditional observance of Setsubun - Midwinter Day and Tanabata – The Star Festival. She developed menus and the kitchen staff prepared appropriate meals. She explained the cultural history of those days through the cartoons shown below.

“As a society with long traditions, Japan enjoys many traditional festivals and observations in the course of the year. As in other countries, these days are marked by the preparation of special foods and the school lunch program often incorporates these dishes into its menus on these days, both for their traditional cultural significance and to acquaint students with foods that they might not otherwise eat often” Ms. Sumida says’

Setsubun - Midwinter Day

Setsubun is the day before the beginning of spring in Japan. It is also New Year’s Eve by the lunar calendar, which begins the year with the first day of spring. On this day, the Japanese perform a ritual to cleanse away all the evil of the previous year and drive it away.



Photo 1: Lunch on Setsubun at Ms. Sumida’s school.

*Corresponding author: giang3900@gmail.com

Conversation between teacher and students at Setsubun lunch time

Teacher: Today is February 3. Do you know what day that is?
 Students: It is Setsubun.
 Teacher: Yes, it is the New Year's Eve Festival by our old calendar.
 So do you know why we throw soybeans at demons on this day?

**Today
Winter**




→

**Tomorrow
Spring**



Students: ???
 Teacher: Demons are evil.
 Students: Yes, but why are they evil?
 Teacher: In the old days, people believed that all sorts of bad things, such as sickness, storms etc. were caused by demons.



Students: Why do we throw soybeans at demons and why we put the heads of sardines and holly at the front door?
 Teacher: Demons dislike the strong smell of grilled sardines. People believed that good spirits dwelt in soybeans and demons are afraid of them.




Photo 2: Holly and sardine heads (Drawings by K. Nagao and N. Sumida)

Tanabata - the Star Festival

Tanabata is one of Japan's five traditional seasonal festivals. Tanabata originated from a Chinese legend, was brought to Japan in the 8th century and

is held on July 7th every year. The cartoon below was prepared to tell a story of two lovers which was the origin of this day and also to explain the special food for Tanabata.

Orihime, daughter of the emperor of heaven, wove beautiful clothes by the Milky Way. *Hikoboshi*, the cow herder, lived on the other side of the Milky Way. They were very hardworking.



The emperor of heaven arranged for *Orihime* to meet *Hikoboshi*. When the two met, they fell instantly in love with each other and married shortly after. However, once married, they forgot their work and started playing.



"Since *Orihime* did not weave, clothes became old and tattered. Please tell her to make new clothes as soon as possible!"
"The cow got sick because *Hikoboshi* didn't take care of it!"
Everyone came to complain to the emperor of heaven.



In anger, the emperor of heaven separated the two lovers: "You two should live separately in the East and West of the Milky Way!" said to *Orihime* and *Hikoboshi*. Since then, *Orihime* kept crying every day and said "I want to meet *Hikoboshi*. I want to meet *Hikoboshi*."



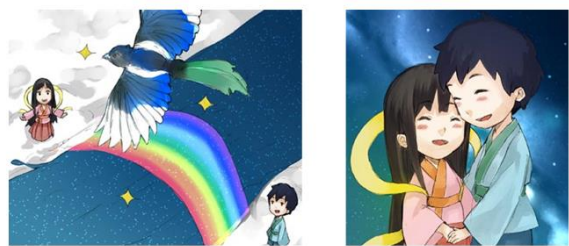
The emperor of heaven was moved by his daughter's tears and permitted them to meet once a year, on the night of July 7th. After that, *Orihime* and *Hikoboshi* came back to work hard and looked forward for the day when they could meet each other.



On the night of July 7th, *Orihime* and *Hikoboshi* came running until they reached the banks of the Milky Way River. However *Orihime* could not cross the river.



Suddenly, a flock of magpies appeared from nowhere and made a bridge so they could reunite. However, if it rains, it is said the Magpies don't come and the couple have to wait another year.



As the date approaches, people wrote a wish on a long, narrow strips of colorful paper, then hang on bamboo branches. The bamboo branches go straight to the heavens and when it is shaken by the wind, it makes a rustling sound, seems like the wish is transmitting to the heavens.



Photo 2: Tanabata story



Photo 3: Special food for Tanabata

When we heard this story, we found it very interesting. In Vietnam, we also have this holiday but the story about it is a little different and there is no special food like Somen. These stories and illustrations make the meals more attractive. Children will enjoy the food more and not let it go to waste. Learning about the legends of the holidays in this way helps children to associate the stories and the food and to remember them more easily. At

the same time, it is also a fascinating topic for family conversation at home.

Integrating culture into school meals is a really good way to educate children. Meals with stories not only nourish children's bodies but also enrich their minds. Through cultural inclusion and nutritious choices, schools will pave the way for a healthier next generation.

Special Issue: AFDA 30th Anniversary

History of Asian Federation of Dietetic Associations: Celebrating the 30th Anniversary, 1991-2021

Chwang Leh-Chii

*Honorary President, Asian Federation of Dietetic Associations
President, Chinese Dietetic Society (Taiwan)*

The Birth and Founding of AFDA:

The birth of Asian Federation of Dietetic Associations (AFDA) fell on September 1991, in Kuala Lumpur, Malaysia. The original name of AFDA was Asian Forum of Dietetic Professionals (AFDP). AFDA serves to enhance the level of professionalism of dietetic practitioners and facilitate the regional collaboration of dietetics in Asia. This year of 2021 marks AFDA's 30th anniversary. The purpose of this article is to document the founding and development of AFDA during 1991- 2021.

The science and practice of modern dietetics began evolving in early 20th century. Dietetic Associations in Asia have been formed in various countries since 1945(1). The idea for forming Asian Federation of Dietetic Associations (AFDA) was inspired by the very first meeting of Asian dietitians who were invited to Taipei for the 1990 Asian Symposium on Rice and Nutrition held by Taipei Dietitians Association (2).

Representatives (in alphabetical order of Organization) were Connie Chan (President, Hong Kong Nutrition Association), Murni Prakaso (Indonesian Nutrition Association), Mitsutoyo Hanamura (Delegate, Japan Dietetic Association), Cho JS (President, Korean Dietetic Association), Uma Thevendran (Nutrition Society of Malaysia), Verona Corpus, President, Nutritionist-Dietitians' Association of the Philippines), Susani Karta (Singapore Dietitians' Association), Viboonyanont S, Vichai Tanphaichitr (Delegates, Dietitian Club of Thailand) and Chwang Leh-chii (President, Taipei Dietitians Association)(3). The most existing session was representatives from 9 Asian countries briefed their dietetic practice and activities outlining the dietetic status. In the plenary session of "where do we go from here", we concluded to form an Asian Dietetic Network for further collaboration (Photo 1).

Asian Symposium on Rice and Nutrition, Taipei, Taiwan, 1990



Photo 1: Asian Symposium on Rice and Nutrition, Taipei, Taiwan, 1990

In the following year, a group of dietitians attended the 6th Asian Congress of Nutrition during September 16-19, 1991 (Photo 2), and held the Preparatory Meeting for establishing AFDP (4) on September 17, 1991 (Tuesday), 1.30-2.30 pm, at Putra World Trade Center, 3rd level.

The meeting was chaired by Chwang Leh-chii. Participants were: Hong Kong Nutrition Association- Veronica Ho, Indonesian Nutrition Association - Murni I.D. Prakaso, Susirah Sutardjo, Japan Dietetic Association - Teiji Nakamura, Korean Dietetic Association- Kim Eul-Sang, Lee Young-Na, Nutrition Society of Malaysia- Uma Rani Thevendran, Singapore Nutrition and Dietetics Association- Evelyn Fong, Lynn Alexander, Taipei Dietitians Association- Chwang Leh-chii, Chiu Ching-hwa

*Corresponding author: lcchwang@gmail.com

AFDP Established in Kuala Lumpur, Malaysia, 1991



Photo 2: AFDP established in Kuala Lumpur, Malaysia, 1991
Uma Rani Thevendran (2nd, L), Murni I.D. Prakaso (3rd, L), Chwang Leh-chii (4th, L),
Lee Young-Na (5th, L), Susirah Sutardjo (6th, L), Teiji Nakamura (1st, R)

The Resolution Adopted by AFDP

In order to improve nutrition status for the population, to promote the development of the dietetic profession, and to establish international cooperation for dietetic education and research activities in Asia, it is agreed to set up a Forum, named as the Asian Forum of Dietetic Professionals (AFDP). The following resolutions were made:

1. The Forum is open to Asian national dietetic associations that represent their countries / areas. When a national dietetic association is not available, a leading association of dietitians will take its position instead.
2. The definition of Dietitian is based upon that of respective country/area.
3. The President-Elect for the Forum is Dr. Chwang Leh-chii, President of the Taipei Dietitians Association and Secretary-General is Ms. Murni Prakaso of Indonesian Nutrition Association.
4. A Symposium on Dietetics is to be held on a 4 year interval. The first one will be held in Indonesia in 1994 and the second one in Korea in 1998.
5. The followings are the founding members of AFDP: Hong Kong Nutrition Association, Indonesian Nutrition Association (now Indonesian Dietetic Association), Japan Dietetic Association, Korean Dietetic Association, Nutrition Society of Malaysia (now Malaysian Dietitians' Association), Singapore Nutrition and Dietetics Association, Taipei Dietitians Association (now Chinese Dietetic Society (Taiwan)), Thailand Dietitians Club (now

Thai Dietetic Association), Nutritionist-Dietitians's Association of the Philippines

In the beginning, it is expected that the Forum develops to a Federation when time is mature for conducting Asian Congress of Dietetics, as we have minimal experience in organizing a Dietetic Congress of a large international scale.

Our wish rapidly became materialized in 1994, the Asian Congress of Dietetics (ACD) was held in Jakarta, Indonesia. Vice President Try Sutrisno and Minister of Health Sujudi inaugurated the Congress. The first Congress laid an excellent example for the following ACDs. AFDP was renamed as Asian Federation of Dietetics Associations (AFDA), and Murni Prakaso of Indonesian was the President elected.

The AFDA Constitution

To guide the activities of AFDA and its members, the AFDA constitution was initially drafted by Dr. Chiu Ching-hwa from Taipei during the first ACD in 1994. The AFDA board held meeting in Beijing 1995, when they attended the 7th ACN, discussed the draft and invited Dr. Susan Lui of Hong Kong Nutrition Association to join drafting. The preliminary edition of AFDA Constitution with 12 articles was set forth during the 1996 International Congress of Dietetics (ICD) in Manila. The Constitution draft went through continuous edition and discussion during 2002 and

2006 ACD. The final version of Constitution with 11 articles was adopted at AFDA General Assembly, chaired by Dr. Demetria Bongga of NDAP, 2007, the 10th ACN in Taipei (5).

The Federation respects the autonomy of its member associations and will not pursue any political, religious, racial or commercial ends. The management of AFDA affairs is vested in the Executive Council.

The member hosting the current Asian Congress of Dietetics (ACD) designates a representative to serve as the President of the Federation for the next term of office. The Honorary President is the founder of AFDA with a permanent appointment.

The objectives of AFDA are to: promote the development of the dietetic profession by keeping members abreast of new knowledge in the area of nutrition and dietetics, establish international collaboration and linkages for dietetic research and educational activities in Asia, promote a network of scientific information exchange in nutrition and dietetics through sharing of expertise and other resources, organize meetings, workshops, conferences and congresses, and link with international dietetic, nutrition and health-related organizations.

The Logo of AFDA:

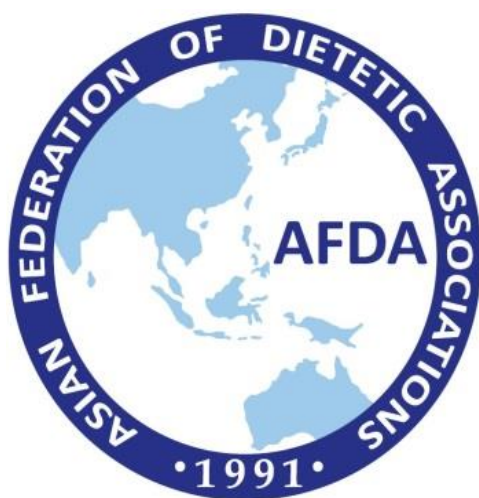


Photo 3: AFDA logo

The AFDA logo profiling the geographic territory of AFDA members in shades of blue (Photo 3) was jointly designed by Nutritionist-Dietitians's-Association of the Philippines, Dietitians Association of Australia, and Hong Kong Nutrition

Association. It was completed and adopted during AFDA General Assembly, chaired by Dr. Sunard Taechangam (TDA) during the 5th ACD in 2010, Bangkok (5).

The AFDA Website:

Facing digital era, a resolution was made to create a website for AFDA at the General Assembly meeting during the 4th ACD held in Bangkok in 2010, and Camila Lee of Hong Kong Nutrition Association served as webmaster. The website www.afda-dietitians.org was launched in 2016. It features milestones and updated activities linking dietitians in Asia and worldwide.

Asian Dietitian's Day:

Asian Dietitian Day is to recognize dietitian's contributions in providing nutrition care to the nation! All members celebrate Asian Dietitians Day annually in their countries throughout Asia and accolade fellow peers in their important roles. September 19 is chosen to commemorate the founding date of AFDA in 1991. It was approved by Executive Council meeting of AFDA in 2015, at Yokohama, Japan, during the 12th Asian Congress of Nutrition (5). For instance, Thai Dietetic Association celebrates this day by sponsoring more than 30 hospitals nationwide to conduct community nutrition activities each year.

The Development and Progress of AFDA:

Asian Congress of Dietetics (ACD)

Since the first ACD was held in Indonesia (1994), it was consecutively held in Korea (1998), Malaysia (2002), Philippines (2006), Thailand (2010), Taiwan (2014) and Hong Kong (2018). The forthcoming congresses will be in Japan (2022), and India (2026).

Each has a theme aiming at contemporary directions and challenges. Gathering of dietetic professionals, nutritionists, researchers and scholars every four years provides a unique venue for sharing new findings in dietetics and innovative evidence-based dietetic practices.

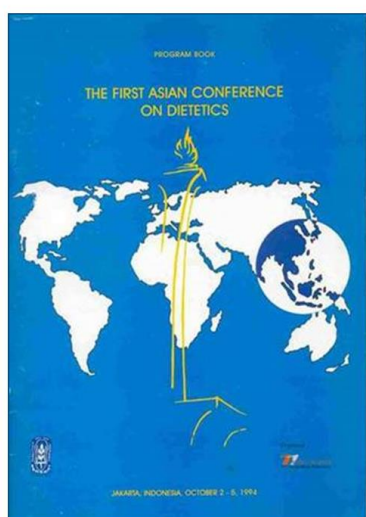
Among all ACD programs, the training and education of dietitians is always the essential subject. It originated from the first ACD 1994, the very first workshop on Education and Training of Professionals in Dietetics and Food Service System Management (DFSSM), chaired by Dr. Sunita Almatsier (INA) and Professor Corazon Barba (NDAP). It was agreed to set up an institutional network to strengthen the education and training program in Asia-Pacific region in order to produce quality dietitians to provide quality nutrition care (6).

Highlight of ACD is the Declaration named after each host city and signed by representatives from AFDA members at the closing ceremony. The declaration is based on discussions at the conference, recognizing urgent issues, striving to promote quality dietetic practices and education, and pledging to enhance health and well-being in Asia (Photo 4-11).



Photo 4: Signing of Taipei Declaration, at 6th ACD, 2014.
Left to right: HKNA, IDA, AsDI, JDA, KDA (behind), MDA, PNDS, NDAP, SNDA, CDS (Taiwan), TDA, DAA.

The 1st ACD, 1994, Jakarta



Murni Mahila
INA (now AsDI)

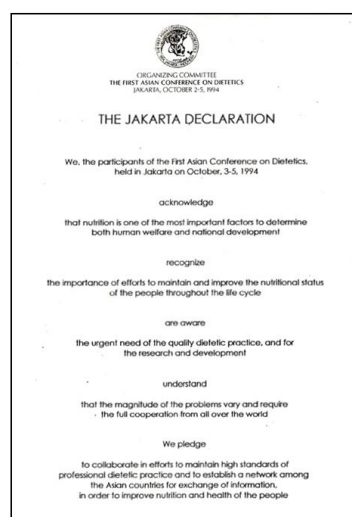
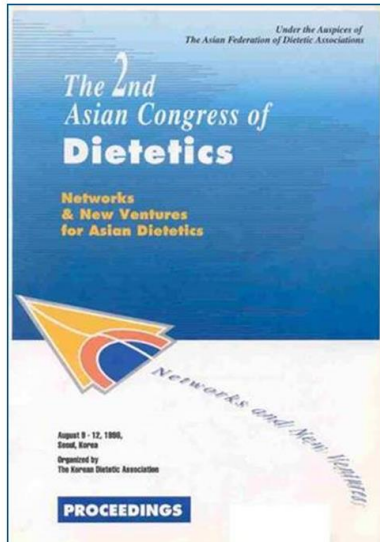


Photo 5: The 1st ACD, Organizing Chair of INA (now AsDI), 1994, Jakarta, Indonesia

The 2nd ACD, 1998, Seoul



Suh Eun Kyung
KDA

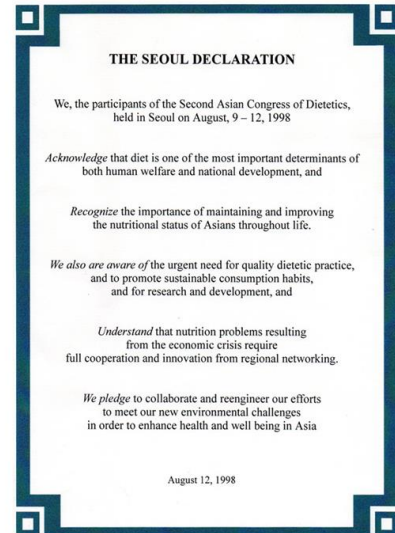
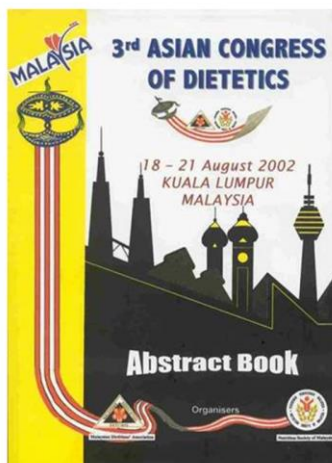


Photo 6: The 2nd ACD, Organizing Chair and President of KDA, 1998, Seoul, Korea

The 3rd ACD, 2002, Kuala Lumpur



Fatimah Arshad
MDA

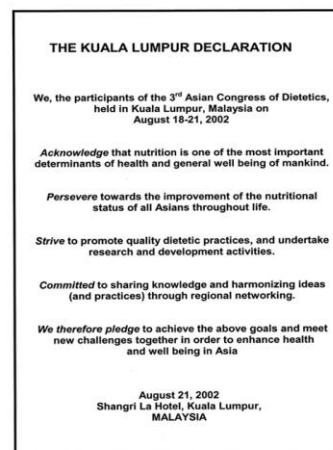
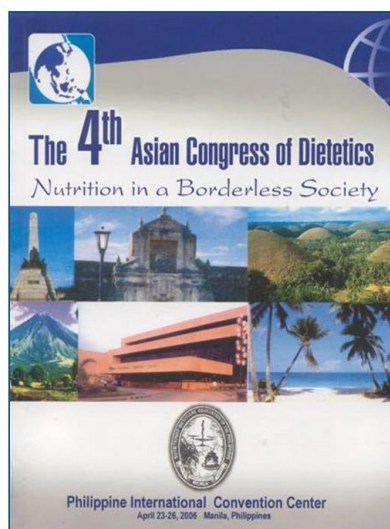


Photo 7: The 3rd ACD, Organizing Chair and President of MDA, 2002, Kuala Lumpur, Malaysia

The 4th ACD, 2006, Manila



Demetria Bongga
NDAP

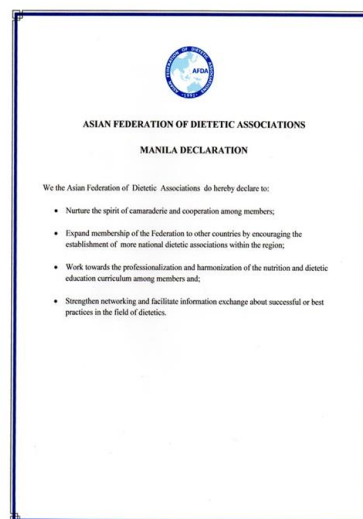
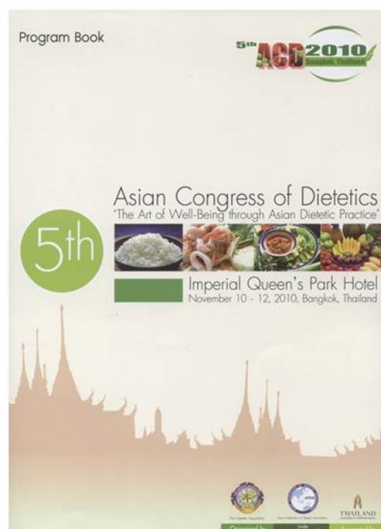


Photo 8: The 4th ACD, Organizing Chair and President of NDAP, 2006, Manila, Philippines

The 5th ACD, 2010, Bangkok



Sunard Taechangam
TDA

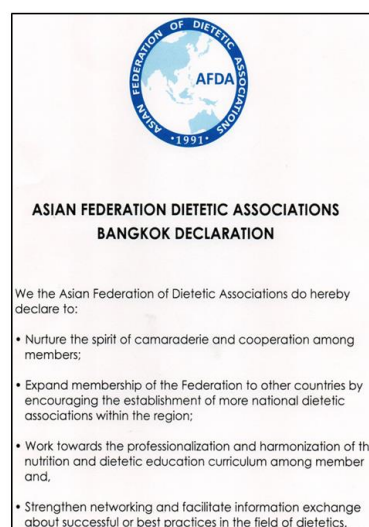
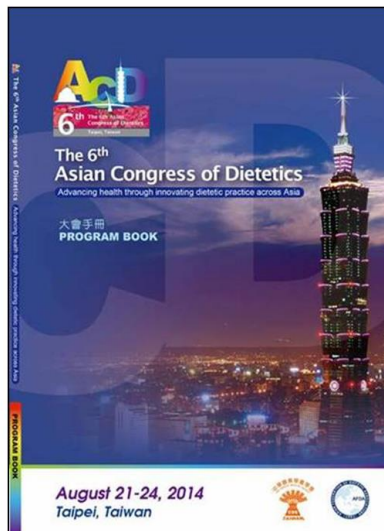


Photo 9: The 5th ACD, Organizing Chair and President of TDA, 2010, Bangkok, Thailand

The 6th ACD, 2014, Taipei

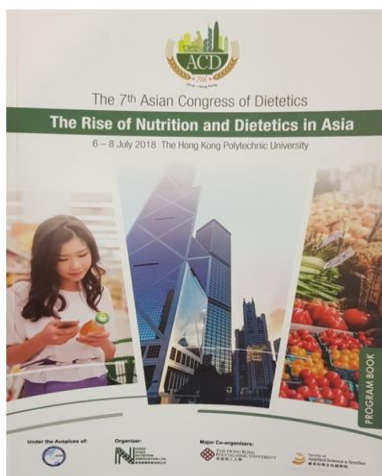


Chwang Leh-Chii
章樂綺
CDS (Taiwan)



Photo 10: The 6th ACD, Organizing Chair and President of CDS (Taiwan), 2014, Taipei, Taiwan

The 7th ACD, 2018, Hong Kong



Gordon Cheung
張智良
HKNA

Frankie Siu
蕭沛霖



Photo 11: The 7th ACD, Organizing Chair and President of HKNA, 2018, Hong Kong

Asian Dietetics Forum (ADF)

The purpose of the Asian Dietetics Forum is to allow AFDA to have interim meeting and activity prior to every 4 years ACD conference.

The first ADF was held in Kuala Lumpur on May 25, 2016, sponsored by Chinese Dietetics Society (Taiwan) and Malaysian Dietitians' Association (Photo 12).

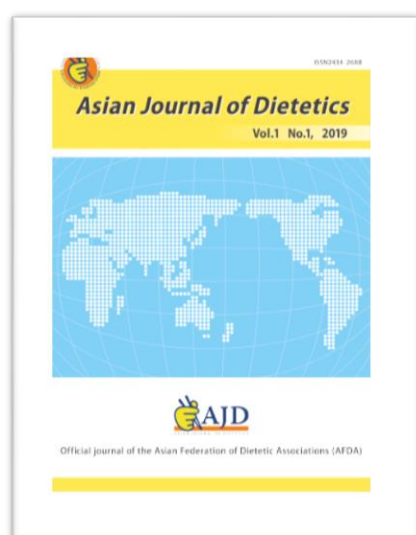
The theme of the forum is "**Asian Dietetics Education**". The aim is to work out a benchmark

statement for AFDA member countries on curriculum, practicum programs and competency standards for dietetic education program. The goal is to facilitate the free flow of dietetic professionals in this region, and to uplift the competency standards of dietitians to meet career requirements and to explore more job opportunities.

The second one planned to be hosted by Hong Kong Nutrition Association in 2020, however, postponed due to Covid-19 pandemic.



Photo 12: ADF in Kuala Lumpur, Malaysia, 2016
Left to right: PNDS, HKNA, JDA, SNDA, DAA, IDA (front), KDA, CDS (Taiwan), AND (USA), MDA, NDAP, AsDI



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Photo 13: Asian Journal of Dietetics, the official journal of AFDA

Asian Journal of Dietetics (AJD)

The 2002 Kuala Lumpur Declaration and 2006 Manila Declaration indicated the urgent need of research and information exchange.

Publishing an academic international periodical in Asia is a formidable task, as writers and readers are from diversified social cultural backgrounds, and topics cover a wide range of preventive and clinical dietetics, dietary culture and behavior, institutional food service management, nutrition policy, education, epidemiology, etc. It was until 2018, Council Meeting of AFDA held in Hong Kong approved the web publishing and peer-reviewed journal. Editorial board members are from eleven AFDA members. Owing to the initiative of Editor-in-Chief, Professor Shigeru Yamamoto from Japan Dietetic Association, the Asian Journal of Dietetics (AJD) with 4 issues a year has been successfully published since January 2019, which provides various subjects of interests to dietitians and benefits their professional development (Photo 13).

Achievement and Prospective of AFDA***Expanding AFDA membership***

Three more national dietetic associations (NDAs) joined AFDA since its founding in 1991: Dietitians Association of Australia (DAA) as an affiliated member in 1998, Pakistan Nutrition and Dietetic Society (PNDS) in 2006 and Indian Dietetic Association (IDA) in 2014 as full members.

Among the founding members, three were originally nutrition associations. AFDA encouraged the transformation of dietetic associations to join AFDA: Indonesian Dietetic Association (AsDI), Malaysian Dietitians' Association (MDA) and Thai Dietetic Association (TDA).

There are now in total 11 regular members and 1 affiliated member in AFDA, the population of these countries are more than 2 billion. The geographic location of AFDA members therefore expands from East and Southeast Asia to South Asia and South Pacific. We shall continue to support and assist establishing more NDAs to join AFDA.

Encouraging policy formation to advance professionalism

Professionalism is manifested by accountable persons acquiring knowledge and competency to

fulfill their duty well. All health care professionals require education, internship, certifications and licensures. Dietitian being health professional has no exception.

At present, certification of dietitians in Japan, Philippines, Korea, Taiwan and Malaysia is regulated by government. qualification examination is required to obtain the title of Dietitian. In other AFDA member countries, it is self-regulated by NDAs, however, not all legally binding. Mandatory registration from a governing body requires law enactment to better safeguard the qualification and credentials of dietitians. We shall also support and enhance professionalism in countries lacking qualified dietetic workforce.

Honoring the devoted and committed pioneers

Many colleagues have been untiringly devoted themselves during the past 3 decades to upgrade dietetic profession and network linkages for AFDA. In addition to the organizing chair of each ACD (Table 1), who is the President of host NAD and serves as the President of AFDA for the next term; acknowledgment also extends to Secretary-General, Dr. Susan Lui (HKNA), Dr. Adela Jamorabo Ruiz (NDAP) and Dr. Winnie Chee (MDA) for assisting AFDA affairs. In recognition of prominent dietetic professionals making significant contribution domestically and internationally toward enhancing dietetic profession, Dr. Chwang Leh-chii Asian Dietetics Award has been conferred at ACDs since 1998 (Table 2).

Asian Outstanding Young Dietitian Award funded by Dr. Chiu Ching-hwa since 2018 recognizes young devoted dietetic professionals aged below 45 making contributions to nutrition and dietetics through active participation, extensive services, domestically and internationally (Table 3).

During the course of the past 30 years, there have been inspiring collaborative events of dietetics through active participation of all AFDA members. The unprecedented Covid-19 pandemic has drastically changed our life since 2020, we shall learn to cope with it and turn crisis into opportunities. Looking to the future, 2021 is an inflection point as we move toward the next decade. We shall continue to build a powerful support of dietetic profession on a broader prospective and to realize the aim of better nutrition status for the population in Asia.

Table 1. ACD during 1994-2022 (5)

ACD	Venue & Date	Theme	Organizing Chair
1 st ACD	Jakarta, Indonesia October 2-5, 1994	Beyond Nutrition Challenges and Opportunities for Professionals in Dietetics	Murni Prakaso, President, Indonesia Nutrition Association
2 nd ACD	Seoul, Korea August 9-12, 1998	Networks & New Ventures for Asian Dietetics	Suh Eun Kyung, President, Korean Dietetic Association
3 rd ACD	Kuala Lumpur, Malaysia August 18-21, 2002	Harmonization of Asian Dietetics	Fatimah Arshad, President, Malaysian Dietitian Association
4 th ACD	Manila, Philippines April 23-26, 2006	Nutrition in a Borderless Society	Demetria Bongga, President, Nutritionist-Dietitians' Association of the Philippines
5 th ACD	Bangkok, Thailand November 10-12, 2010	The Art of Well-Being through Asian Dietetic Practice	Sunard Taechangam, President, Thai Dietetic Society
6 th ACD	Taipei, Taiwan August 21-24, 2014	Advancing Health through Innovating Dietetic Practice across Asia	Chwang Leh-chii, President, Chinese Dietetic Society (Taiwan)
7 th ACD	Hong Kong July 6-8, 2018	The Rise of Nutrition and Dietetics in Asia	Gordon Cheung, President, Hong Kong Nutrition Association
8 th ACD	Yokohama, Japan August 19-21, 2022 (scheduled)	Realizing a Sustainable Healthy Society for a Bright Future in Asia	Teiji Nakamura, President, Japan Dietetic Association

Table 2: Dr. Leh-Chii Chwang Asian Dietetics Award

Awardee	Venue, Year conferred
Dr. Fatimah Arshad,— Malaysian Dietitians' Association	at the 2 nd ACD, 1998, Seoul, Korea
Ms. Murni Muhilal,— Indonesian Dietetic Association	at the 3 rd ACD, 2002, Kuala Lumpur, Malaysia
Ms. Velona Corpus,— Nutritionist-Dietitians' Association of the Philippines	at the 4 th ACD, 2006, Manila, Philippines
Dr. Hyun Kyung Moon,— Korean Dietetic Association	at the 5 th ACD, 2010, Bangkok, Thailand
Dr. Sunrad Taechangam,— Thai Dietetic Association	at the 6 th ACD, 2014, Taipei, Taiwan
Dr. Susan Lui,— Hong Kong Nutrition Association	at the 7 th ACD, 2018, Hong Kong
Dr. Salma Halai Badrudin,— Pakistan Nutrition and Dietetic Society	at the 7 th ACD, 2018, Hong Kong

Table 3: Dr. Ching-Hwa Chiu Asian Outstanding Young Dietitian Award

Awardee	Venue, Year conferred
Mr. Gordon Cheung,— Hong Kong Nutrition Association	at the 7 th 7th ACD, 2018, Hong Kong
Ms. Fayza Khan,— Pakistan Nutrition and Dietetic Society	at the 7 th 7th ACD, 2018, Hong Kong

ACKNOWLEDGEMENTS

The author greatly appreciate Mr. Ta-te Yuan for making photo PowerPoint of this manuscript.

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NDAP Hosts the 4th ICD in Manila, Philippines

Zenaida F. Velasco

President of the Nutritionist-Dietitians' Association of the Philippines

It is with great pride that the Nutritionist-Dietitians' Association of the Philippines (NDAP) hosted the 4th Asian Congress of Dietetics (ACD) from April 23 to 26, 2006. The Philippine International

Convention Center (PICC) in Manila became the convergence zone of 853 nutrition professionals from different cultures in the Asia Pacific region.



Country Representatives to the 4th ACD in Manila, 2006.

L-R: Dr. Demetria Bongga (Congress Chair), Dr. Chwang Leh-chii (Taiwan), Susan Lui (Hong Kong), Murni Prakoso (Indonesia), Dr. Teiji Nakamura (Japan), Kwak Dong-Kyung (Korea), Velona Corpus (Asian Dietetic awardee), Nilofer Safdar (Pakistan), Sunard Taechangam (Thailand) and Dr. Corazon Barba (Philippines)

The theme of the 4th ACD is “Nutrition and Dietetics in a Borderless Society” which opened the limitless possibilities of the profession to a society without borders. The Congress aimed to provide the participants from Thailand, Taiwan, Singapore, Pakistan, Malaysia, Korea, Indonesia, Hong Kong, Australia and the Philippines with: 1) an advanced awareness of the scientific advances and issues in nutrition and dietetics; 2) an experience of camaraderie among fellow dietitians and strengthen bonds with old and new friends; and 3) the chance to chart new directions for Asian dietitians in an increasingly borderless region.

Leading the Congress was Dr. Demetria C. Bongga (Congress Chair) and Dr. Corazon VC. Barba (NDAP President), who believed that the Congress

would be a catalyzer for the Asian ND professionals to respond to nutritional challenges and issues through a regional, strengthened collaboration using technological advancements in the knowledge management area.

The 4th ICD focused on nutrition and dietetic issues towards a realistic convergence in the practice of the profession in the Asian region. Topics such as harmonization of growth and nutrition standards; the dietetics curriculum; healthy lifestyles and food choices in the light of the increasing borderlessness of food production and consumption, and the integration of cultures; food and national security in Asia; updates on the dietary management of non-communicable diseases; developments on Nutrigenomics and health; and other recent trends in the profession.

*Corresponding author: mszhenie@yahoo.com



4th ACD Overall Chair Dr. Demetria Bongga (seated extreme left) with country representatives of the AFDA

A host of international speakers, including respected dietitians and researchers shared their recent work and best practices in the advancement of dietetics during the plenary sessions, concurrent symposia and workshops, free communication sessions and exhibits. Aside from the technical sessions, participants, particularly the first-timers in Manila were offered tours at cost which they can enjoy such as city tour, shopping and food tour, spa experience, hospital tour, and out of Manila destinations.

The successful hosting of the ACD in Manila has shown that the ND profession has attained higher professional relevance both in Asia and in the international arena. Filipino dietitians including physicians and other food and nutrition professionals presented 38 papers and 28 posters in the technical program. In the closing ceremony, the ACD flag was handed to next ACD host country Thailand by NDAP President Dr. Barba. After chairing the Congress in 2006 Dr. Bongga will assume the Presidency of AFDA until the conclusion of the 5th ACD in 2010.

Thai Dietetic Association: Celebrating the AFDA 30th Anniversary

Sunard Taechangam¹, Chanida Pachotikarn²

¹Former President of AFDA and Advisory Committee of Thai Dietetic Association

²President of Thai Dietetic Association

To celebrate the AFDA's 30th anniversary, TDA would like to congratulate to AFDA for achieving AFDA's objectives, promoting the development of the dietetic profession, striving to promote quality dietetic practices and education, and pledging to enhance health and well-being in Asian population. Sincere thanks to the twelve National Dietetic Association members for our great collaboration that have made AFDA widely recognized as the Asian Organization for Dietetics Professionals. The purpose of this article is to document what activities TDA organized to support the objectives of AFDA and TDA.

About Thai Dietetic Association (TDA)

TDA was first established as The Thai Dietetic Club in 1974 and became the Association on March 18, 2005. It is a non-profit private organization and is a professional member organization. The seven key contributors as shown below (Photo 1) supported the establishment and participation of TDA. TDA was formed to support and advance the dietetic profession, to promote quality improvement of dietetic practices and education in Thailand. The activities conducted by TDA including studies related to the education and work of dietitians, and developing the standards of education and practice of dietitians in the regions. Currently, TDA has 4,028 members from all over the country.

The Aims and Activities of TDA

Vision of TDA:

Achieving healthy Thais through the excellence of dietetic practices

Mission of TDA:

1. Maintain dietetic education and professional standards and continually quality improvement of dietetic practices.
2. To be a center for information regarding all aspects of nutrition and dietetics to dietitians, health care professionals and general public.
3. Exchange knowledge and experience in nutrition and dietetics with corporate networks domestically and internationally, to improve the quality of life of the population.

Registration/Licensing of Dietitians in Thailand

Dietitians received a royal order to enact a royal decree and King Rama the 10th approved on June 20, 2020 and published in the Government Gazette, given on June 23, 2020 (Photo 2-3). There are 2550 dietitians passed the first registration examination out of 2577 eligible members applying for the registration and taking the examination. Currently, there are 2923 registered dietitians obtained a dietitian license.



Photo 1: The Seven Key Contributors Supported the Establishment and Participation of TDA

*Corresponding author: s.taechangam@gmail.com



Photo 2: Dietitians Received a Royal Order to Enact a Royal Decree on 2020



Photo 3: The First Meeting of the Professional Committee

The Activities for TDA

TDA organizes the Annual Conference for 3 days in April. There are approximately 700-800 dietitians from various hospitals of the country attending the conference. The E-posters are presented during the Conference. (Photo: 4-6) In addition, to promote Asian Food Culture, to encourage dietitians to conduct research on nutrition and nutrition therapy and also

develop the recipes to patients and general population using soy products for the study, TDA provides the Soybean and Soymilk Study Awards annually. The food demonstration of the modified soy recipes with nutrient composition, ingredients, cooking method are presented via video and E-poster. (Photo: 7-9)



Photo 4-6: Organize the TDA Annual Conference

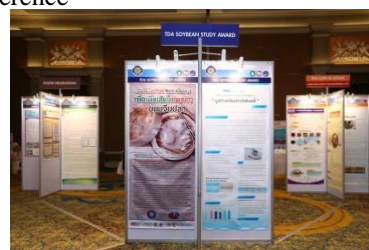


Photo 7-9: TDA provides the Soybean and Soymilk Study Awards annually



Photo 10-11: Organize Regional Meeting, Short Courses Training for Professional Development



Photo 12-14: Establish a Network of Dietetic Professionals in 13 Health Districts



Photo 15-16: Support the TDA Research Award to Promote the Research Activities



Photo 17-18: Set the Standards of Dietitian Education and Training

Certified Dietitian of Thailand (CDT)

To standardize the knowledge and practice of dietitians, TDA organized the examination for certified dietitian of Thailand (CDT.) since the year 2010. There are 2173 dietitians passed the CDT examination out of 4028 members. The CDT certificate is valid for 5 years and should be renewed (Photo 19-20)

Asian Dietitian's Day

TDA and the members organize the activities for Asian Dietitian's Day during September annually in Thailand to recognize dietitian's contributions in providing nutrition care and dietitian's roles. TDA also provides the fund to the members for support the activities. (Photo 21-26)



Photo 19-20: Organize the Examination for Certified Dietitian of Thailand (CDT)



Photo 21-26: Asian Dietitian 's Day

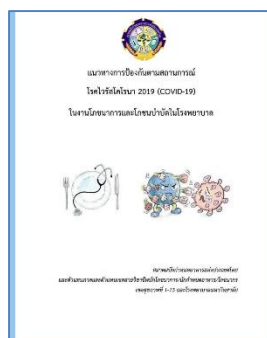


Photo 27-29: Participate the Activities During Disaster and Covid-19

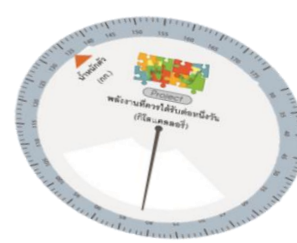
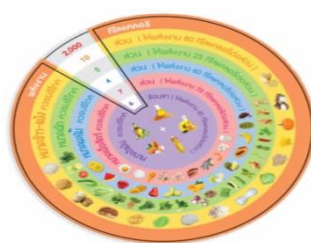
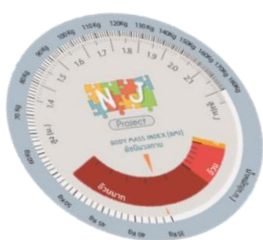


Photo 30-35: The Educational Tool Box Providing Diet Counseling According to Stage of Change



Photo 36-37: The Educational Tools : Food-Based Dietary Guideline & Food Model

The Activities with AFDA



Photo 38-40: TDA Organized the 5th Asian Congress of Dietetics (ACD) 2010, Bangkok, Thailand



Photo 41-43: The 5th ACD 2010, Opening Ceremony and Invited Speakers



Photo 44-46: The 5th ACD 2010, AFDA Committees, Food Demonstration and Asian Night



Photo 47-49: AFDA COUNCIL AND BUSINESS MEETING

Photo 47-48: The 5th ACD 2010, Bangkok, Thailand

Photo 49: The 6th ACD 2014, Taipei, Taiwan

The Asian Dietetics Forum (ADF)



Photo 50-51: TDA joined the First Asian Dietetic Education Forum (ADF) 2016, Kuala Lumpur, Malaysia

Conclusion

In celebration of the AFDA 30th Anniversary, give us a chance to reflect on our Dietetic Associations' history and events, our founders who have contributed to our success along the way and also to look at the challenges and future directions to come. The National Dietetic Associations in Asia have to join our hands together to enhance health and well-being in Asian population. There are many more career opportunities available for dietitians, not only in the hospitals but today we are entrepreneurial. Dietitians are in private practices, in specialties, as well as personalized dietitians and so on.

Our dietetic professions have come a long way with many challenges in the last three decades but yet a unique opportunity for innovation and collaboration among us to promote the value of the dietetic professions that we can make a difference in health and well-being through food, nutrition and dietetics.

Lastly, TDA would like to thank AFDA that brings us to work together toward our mutual vision, moving forward together to accomplish our common goal "To be the best as we can as the Asian dietitians"

Development of Asian dietetics and the further solidarity of dietitians

Teiji Nakamura

President of the Japan Dietetic Association

In 1991, when the 6th Asian Congress of Nutrition (ACN) was held in Kuala Lumpur, the current Asian Federation of Dietetic Association (AFDA)'s predecessor, the Asian Forum of Dietetic Professionals (AFDP) was born, and Dr. Leh- Chii Chwang was elected as the first president. I still remember that Hong Kong, Indonesia, South Korea, Malaysia, Philippines, Singapore, Taipei, Thailand and Japan signed the Declaration. We would like to express our sincere gratitude to the many stakeholders who have contributed to the development of AFDA over the last 30 years.

Now, there are three issues that were enthusiastically discussed during the founding period of AFDA and have not changed even today.

One is to activate research on dietetics as well as nutrition in order to make nutrition useful to society. In general, as medicine advances, medical care develops, and people can greatly benefit from it. However, even if basic research in nutrition progresses, it does not lead directly to a solution for malnutrition. Despite significant advances in nutritional research in recent years, the world is still suffering from the double burden of malnutrition, a mixture of hunger and obesity, and the situation is getting worse rather than being resolved. This is because research in dietetics with a focus on practical nutrition has not progressed.

The reason why dietetics has not progressed is that physiology and biochemical research centered on energy and nutrients are easy to tackle because research methods are established and the results are clear, but dietetics is a complicated matter. In order to optimize energy and nutrient intake, it is necessary to adjust the content of foods, the combinations of foods, and the menus, which involve the households, as well as the agriculture, industries, and economies, customs, and even culture in which people live. In other words, actual nutritional improvement requires these modifications, taking into account a wide variety of vector (direction and force) effects. It is not possible through the efforts of individuals, one region, or one nation alone.

The second is the issue of Asia. At present, Asia

world, with remarkable economic development, and is the most ethnically diverse and populous area in the world. The changes and problems of the whole world are currently concentrated in Asia and the Middle East. Moreover, each Asian country has a long cultural tradition and has a unique diet. Moreover, many countries have been influenced by the developed countries of Europe and by the United States and have sought rapid economic growth in order to reduce poverty and attain affluence. Western foods with high energy and a high content of various nutrients, temporarily solve a country's undernutrition, but eventually become an inducer of obesity and non-communicable diseases (lifestyle-related diseases). If left unchecked, this will lead to an increase in medical expenses and will have an adverse effect on national finances with the advent of an aging society.

Third is the immaturity of the dietitian system. It is necessary that the education and training system for dietitians which is conducted independent from nutritionists and medical doctors for nutrition, that they have their own social roles, and that they be certified as officially recognized professions, but there are still variations in each country.

Despite these three issues, the westernization, simplification, and modernization of meals will progress in Asian countries in the future. Furthermore, we need to contribute to the creation of a sustainable society where no one is left behind. It is nutrition in Asia that can play a role in such a difficult situation. The reason for this is that Asians respect nature and have a farming culture that has been nurtured in nature. If Asian dietetics, which should fuse this food culture and scientific rationality, is developed, it can be transmitted as a model for the world.

To that end, it is necessary to further develop the AFDA through further cooperation of the dietetic associations of each country.

Fortunately, Asia Congress of Dietetics (ACD) will be held in Yokohama in Japan from August 19th (Friday) to 21st (Sunday), 2022. We look forward to the participation of many people and a great deal of discussion about Asian dietetics and nutrition.

*Corresponding author: nakamura-t@kuhs.ac.jp

Original**Effectiveness of Medical Nutrition Therapy with Technology-Assisted Intervention on Cardiometabolic Parameters in Thai Participants with Prediabetes and Obesity**

Pornthip Yoonaisil^{1*}, Nipa Rojroongwasinkul¹, Weerachai Srivanichakorn²,
Theeravet Pattayanant³, Wantanee Kriengsinyos¹

¹ *Institute of Nutrition, Mahidol University, Thailand*

² *Faculty of Medicine, Siriraj hospital, Mahidol University, Thailand*

³ *Faculty of Medicine, Bhumibol Adulyadej hospital, Thailand*

ABSTRACT: Prior studies proved that intensive behavioral lifestyle intervention can prevent or delay development of type 2 diabetes mellitus (T2DM). However, few studies regarding diabetes prevention were as effective programs for Thai participants. The objective of this study was to investigate the effects of developed behavioral lifestyle intervention program compared with usual care on cardiometabolic parameters in Thai participants with prediabetes and obesity after 12 weeks. The study design was randomized controlled trial and block allocation according to gender and age. Experimental group received individual Medical nutrition therapy (MNT) counseling and developed technology-assisted intervention. The technology-assisted intervention had 3 activities via LINE application including sending message 3 days/week according to their stages of change, asking question and self-report. Control group was the usual care at check-up center that received general health advice. Per-protocol analysis was performed in participants who completed 12-week intervention; experimental group (n=22) and control group (n=21). Experimental group had a greater percentage of weight loss -3.1% with median difference -4.4% compared control group. Twenty-seven percent of experimental group return prediabetes status to normoglycemia after 12 weeks without T2DM development. Moreover, waist circumference, percentage of body fat, fasting plasma glucose, blood pressure, Thai CVD risk and DM risk score were significantly changed to better outcomes over control group. In conclusion, the results demonstrated that this program is effective in weight reduction, remission of prediabetes status and improving other cardiometabolic parameters. Change of better outcomes was according to healthier diet pattern and more active physical activity.

Keywords: Medical nutrition therapy (MNT), prediabetes, obesity, diabetes prevention

INTRODUCTION

Type 2 diabetes mellitus (T2DM) is a common health problem effected disability and global health expenditure. International Diabetes Federation (IDF) 2019 reported the global prevalence of diabetes was approximately 9.3% or 463 million adults (20-79 years) with more than half undiagnosed (1). In Thailand, there were 8.9% of Thai people with diabetes, 14.2% with impaired fasting glucose (IFG) and 37.5% with obesity (2). Therefore, early detection and prevention in high risk of diabetes such as prediabetes and obesity are important for reducing the incidence of disease, other NCDs and consequent disability. The American Diabetes Association (ADA) 2019, the standards of medical care in diabetes recommends that people with prediabetes or high risk for T2DM should be referred to intensive behavioral lifestyle intervention for diabetes prevention. The lifestyle intervention should be composed of individual approach and goal setting to highly effective in T2DM prevention and also improve other cardiometabolic parameters such as blood pressure, lipid profile and inflammation. Combined technology-assisted intervention based on patient preference also could increase effectiveness of outcome. Long-term management should promote diabetes self-management education and support to maintain behaviours (3).

The Diabetes Prevention Program (DPP) recommended by the ADA demonstrated that intensive lifestyle intervention by initial weight loss and active physical activity can reduce the incidence

of type 2 diabetes by 58% over 3 years (4). Moreover, a randomized controlled trial study in prediabetes with overweight or obesity who received individualized medical nutrition therapy by a registered dietitian was confirmed that HbA1C and diabetes risk score in 3 months were significant after this intervention compared with usual care group who received brief advice from a physician (5).

However, few lifestyle intervention program and study regarding diabetes prevention were as effective program for Thai participants with prediabetes. The usual care of prediabetes setting usually provides brief advice from a physician and no role of dietitian obviously. So the researcher wanted to develop diabetes prevention program that suitable for Thai people with high risk as prediabetes and obesity, and evaluate the effectiveness of the program for 12 weeks.

METHODS

The study design was a randomized controlled trial and block allocation. Recruited participants were randomly allocated according to gender and age (30-44, 45-60 years old) then divided into experimental or control group. This study was proceeded at check-up center of private hospital in Bangkok, Thailand. Participants were selected after blood test within 3 months. Inclusion criteria was Thai adults aged between 30-60 years old with IFG (100-125 mg/dL) and obesity (BMI ≥ 25 kg/m²) diagnosed who could daily use of LINE application. Exclusion criteria was people with chronic disease such as related metabolism disturbance (chronic kidney disease,

*To whom correspondence should be addressed:
o-jinny-o@hotmail.com

cancer, thyroid disease), eating disorder, who taking medication effected on weight, or ongoing other weight loss program within 3 months.

Experimental group received behavioural lifestyle intervention composed of individual MNT counselling and technology-assisted intervention via LINE application. Individual MNT counselling was provided by face-to-face at week 1 around 15-20 minutes, then via LINE call follow-up 5-10 minutes at week 3, 6, and 9. At the end of each MNT session, participants were specified “goal setting” (ex. weight, waist circumference or other health outcomes) and “action planning” (diet and exercise) together with the research and record in personal LINE Note. Technology-assisted intervention composed of motivational and educational text messages reviewed by 2 experts (diabetes with certified diabetes educator). There were four types of massages (diet, exercise, health problem and empowerment). Sending text messages depended on the stages of change, goal setting and action planning. Participants were received it via LINE chat 3 days/week. Moreover, they could send messages to asking questions related intervention or reporting behaviour change to the researcher anytime along 12 weeks.

Control group was similar to usual care in check-up center. Participants received general health advice from the researcher around 5 minutes. The advice followed by check-up report from the hospital and ADA recommendations. Contents of advice included lab result interpretation, diagnosis with IFG and obesity and generalize recommendations. The recommendations were long term losing weight 7% from baseline, diet control, regular exercise at least 150 minutes/week, monitoring and follow up with physician next 3 months.

Primary outcome was percentage of weight change between baseline and week 12. Secondary outcomes were cardiometabolic parameter changes including BMI, fat mass, blood glucose, blood pressure, Thai CVD and DM risk score. Other outcomes were observed diet pattern and active physical activities.

Statistical analysis was analysed with IBM SPSS Statistics for Windows version 19.0 (IBM Corp., Armonk, NY, USA). Analyses were performed using data available by per-protocol analysis from individuals who completed 12-week intervention. Independent T-test or Pearson Chi-square were used to compare intergroup differences of baseline characteristic in experimental and control group. Mann-Whitney U tests applied to skewed distribution data. Paired T-test was used to determine within group difference of outcome changes. P values < 0.05 considered statistically significant.

This study approved by the committee on human rights related to research involving human volunteers, Mahidol University.

RESULTS

Eligible 64 people enrolled between July and October 2019 from check-up center shown in Figure 1. Fourteen people were excluded before randomization. Total 50 participants were randomized and allocated into 4 categories by sex (female and male) and age (30-44 and 45-60 years old) then transferred to experimental group (n=25) or control group (n=25). There were 43 participants (84%) who completed 12-week intervention period; experimental group (n=22) and control group (n=21). Seven participants lost to follow-up or could not meet appointment. Per-protocol analysis was performed to determine the difference of outcomes after 12 weeks.

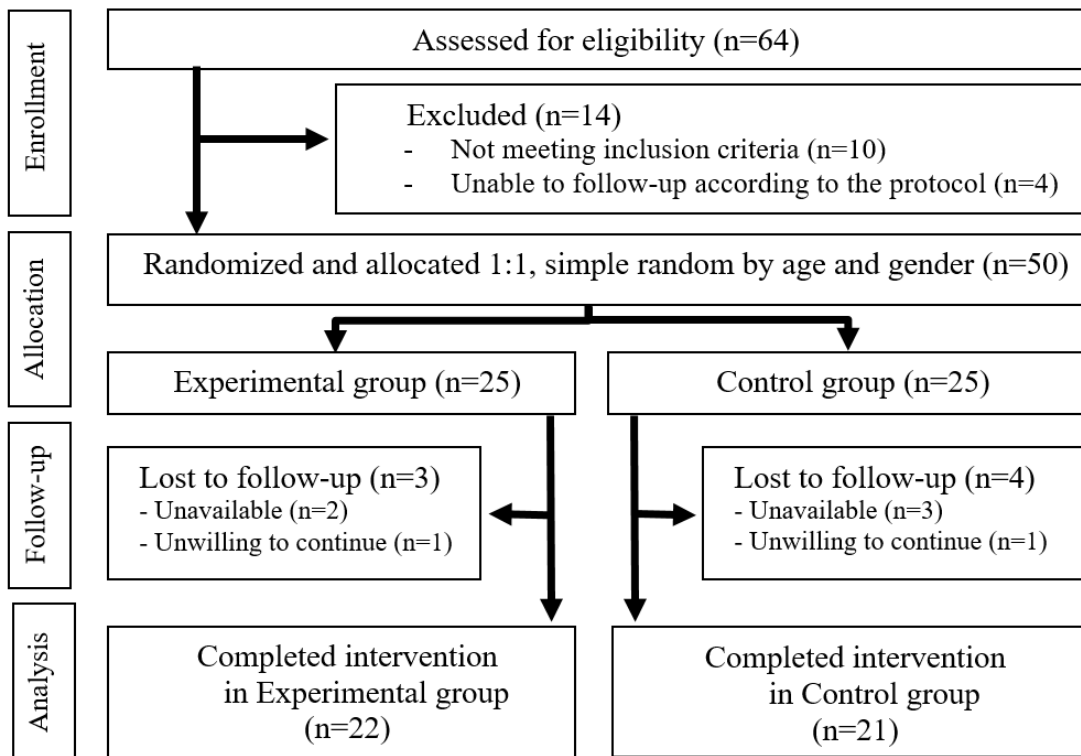


Fig 1. Participant flow diagram from screening to final analysis

Table 1 Baseline characteristic and cardiometabolic parameters in the experimental and control groups

	Experimental group (n=22)	Control group (n=21)	P value
Age (year)	45.1 ± 7.2	44.3 ± 8.05	0.75 ^a
Gender: Male, n (%)	8 (36.4%)	6 (28.6%)	0.59 ^b
Education level: Low/ High, n (%)	9 (40.9%) / 13 (59.1%)	10 (47.6%) / 11 (52.4%)	0.66 ^b
Smoking: Yes, n (%)	2 (9.1%)	0 (0.0%)	0.16 ^b
Alcohol drinking: Yes, n (%)	7 (31.8%)	5 (23.8%)	0.56 ^b
Hypertension: Yes, n (%)	4 (18.2%)	5 (23.8%)	0.65 ^b
Dyslipidemia: Yes, n (%)	17 (77.3%)	17 (81.0%)	0.77 ^b
Weight (kg)	77.2 ± 11.2	76.2 ± 10.8	0.76 ^a
BMI (kg/cm ²)	29.2 ± 3.3	30.1 ± 3.1	0.38 ^a
Waist (cm)	97.0 ± 6.1	99.9 ± 7.2	0.15 ^a
Lean mass (%)	60.0 ± 8.4	58.4 ± 7.6	0.52 ^a
Body fat mass (%)	36.4 ± 8.65	38.2 ± 7.71	0.49 ^a
Fasting plasma glucose (mg/dL)	112 ± 8	109 ± 6	0.16 ^a
Systolic blood pressure (mmHg)	128 ± 19	128 ± 11	0.97 ^a
Diastolic blood pressure (mmHg)	81 ± 11	82 ± 10	0.82 ^a
Thai CVD risk (%)	3.57 [-1.47, -5.71]	2.88 [-1.7, -5.57]	0.83 ^c
Thai DM risk score	10.3 ± 2.6	10.8 ± 2.7	0.54 ^a
Energy (kcal/day)	1713 [1561, 2148]	1724 [1516, 1940]	0.63 ^c
% Carbohydrate	55.0 ± 4.7	57.6 ± 6.9	0.22 ^a
% Protein	15.6 ± 3.0	15.2 ± 2.7	0.69 ^a
% Fat	29.4 ± 3.7	27.1 ± 5.5	0.13 ^a
Fiber (g/day)	10.0 [7.5, 14.5]	10.0 [7.0, 12.0]	0.49 ^c
Sugar (g/day)	50.5 [40.3, 63.0]	63.0 [46.5, 87.5]	0.08 ^c
Saturated fat (g/day)	16.0 [9.8, 20.0]	14.0 [9.5, 16.5]	0.62 ^c
Sodium (mg/day)	3106 [2090, 3649]	2587 [2316, 4928]	0.66 ^c
Water (ml/day)	1500 [1150, 2000]	1500 [1100, 2000]	0.56 ^c
Vegetable (serving/day)	1.75 [0.69, 2.25]	1.50 [1.00, 1.50]	0.20 ^c
Fruit (serving/day)	0.93 [0.29, 1.5]	1.43 [0.50, 2.00]	0.36 ^c
Whole grain (serving/day)	0.43 [0.07, 1.78]	0.29 [0.03, 0.50]	0.14 ^c
Legume (serving/day)	0.36 [0.15, 0.93]	0.13 [0.00, 0.75]	0.15 ^c
MVPA (minutes/week)	55.0 [0.0, 76.3]	40.0 [0.0, 90.0]	0.96 ^c

Data are presented as the frequency, mean ± sd (normally distributed data) and median [P25, P75] (non-normally distributed data). ^aIndependent T-test, ^bPearson Chi-Square, ^cMann-Whitney U-test.

Low = high school or below, High = bachelor Degrees/ diploma or above; BMI, body index mass; Thai CVD risk, Thai cardiovascular risk; Thai DM risk score, Thai diabetic risk score.

There was no statistically significant difference in baseline characteristics among 43 participants in experimental group (n=22) and control group (n=21) that shown in Table 1. Participants in experimental group significantly lost a greater percentage of body weight (median [P25, P75]) with -3.11% [-4.16%, -0.95%] whereas those in the control group significantly gained their weight +1.30% [-0.45%, +3.05%].

There were 59% of participants who lost weight ≥ 3%, other cardiometabolic parameter changes were shown in Table 2. Percentage of lean mass in experimental group significantly increased and mean percentage of body fat significantly decreased, while those in control group did not. Fasting capillary blood glucose in experimental group significantly decreased (-5.0 mg/dL, P <0.01). Moreover, glycemic status after intervention was regressed from IFG to normoglycemia about 27% without newly diagnosed diabetes during 12-week intervention. Fasting plasma glucose in control group significantly increased and did not change in glycemic status. Thai DM risk score in experimental group was significantly decreased within and

between groups. Statistically significant differences among both groups were observed in Thai CVD risk, systolic and diastolic blood pressure.

Nutrient data from 3-day food record and semi-FFQ were shown in Table 2. Experimental group reduced daily energy intake 334 kcal (p <0.001) while control group was little increasing. Significant food group and nutrient consumption difference between groups were found in protein distribution (p<0.05), saturated fat (p<0.05), water intake (p<0.05) and vegetable (p<0.01). Distribution of macronutrient (Carbohydrate: Protein: Fat %) at week 12 were (50: 20: 30 %) in experimental group and (57: 17: 26 %) in control group. Diet pattern within experimental group had a significant increasing in protein distribution, fiber, vegetable, and decreasing in carbohydrate distribution, sugar, saturated fat at 12-week compared baseline. Minute of weekly moderate to vigorous intensity physical activity (MVPA) at baseline and week 12 were shown in Table 2 Participants in experimental group significantly increased the minute of weekly MVPA at week 12 compared baseline above control group (p<0.05).

Table 2 Changes of cardiometabolic parameters, food groups, energy and nutrient intakes within the group and between the groups

Cardiometabolic parameters	Experimental group	Control group	P value ^a
Weight (kg)	-2.2 [-3.1, -0.9] ***	+1.0 [-0.4, +2.1] *	<0.001
BMI (kg/cm ²)	-0.8 [-1.2, -0.3] ***	+0.4 [-1.5, +0.85] *	<0.001
Waist (cm)	-2.3 [-5.0, -1.0] ***	+1.0 [-0.3, +2.0] **	<0.001
Lean mass (%)	+0.8 [-0.2, +1.8] *	-0.3 [-0.8, +0.3]	<0.01
Body fat mass (%)	-0.8 [-1.8, +0.2] *	+0.5 [-0.3, +0.8]	<0.01
Fasting plasma glucose (mg/dL)	-5.0 [-10.5, +1.0] *	+3.0 [-1.5, +12.0] *	<0.01
Systolic BP (mmHg)	-2.5 [-10.5, +1.0]	+3.0 [-2.5, +9.5]	0.04
Diastolic BP (mmHg)	-2.0 [-7.5, +1.8]	+4.0 [-0.5, +11.5] *	0.01
Thai CVD risk (%)	-0.25 [-0.43, +0.13]	+0.10 [-0.10, +0.70]	0.02
Thai DM risk score	0.0 [-2.0, 0.0] *	0.0 [0.0, 0.0]	0.02
Energy (kcal/day)	-334 [-574, -128] ***	+77 [-134, 288]	<0.001
% Carbohydrate	-4.0 [-9.3, +2.0] *	0.0 [-4.5, +2.5]	0.20
% Protein	5.0 [+3.0, +7.3] ***	1.0 [-1.0, +2.5] *	<0.01
% Fat	0.0 [-6.25, 5.5]	0.0 [-3.5, +2.5]	0.87
Fiber (g/day)	+2.0 [-1.3, +6.3] *	+2.0 [-1.0, +4.0]	0.53
Sugar (g/day)	-24.8 [-10.5, +0.5] *	+11.0 [-14.4, +22.0]	0.07
Saturated fat (g/day)	-4.5 [-12.3, +3.5] *	0.0 [-4.5, +6.5]	0.11
Sodium (mg/day)	+39 [-1197, +1027]	+492 [-796, +1529]	0.17
Water (ml/day)	+350 [0, +625] **	0 [0, 0]	<0.01
Vegetable (serving/day)	+0.47 [0.00, +1.31] **	0.00 [0.00, 0.00]	<0.01
Fruit (serving/day)	+0.07 [-0.27, +0.52]	0.00 [0.00, +0.13]	0.70
Whole grain (serving/day)	0.00 [-0.40, +0.34]	0.00 [0.00, +0.09]	0.98
Legume (serving/day)	0.00 [-1.7, +0.28]	0.00 [-0.2, 0.00]	0.60
MVPA (minutes/week)	+55 [+8, +90] *	0 [0, 0]	<0.001

Data are shown as median [P25, P75].

^a = metabolic outcome change between group, non-parametric test, Mann-Whitney U-test.

*** = P<0.001; ** = P<0.01; * = P<0.05, outcome changes within group with Paired T-test.

BMI, body index mass; BP, blood pressure, Thai CVD risk, Thai cardiovascular risk; Thai DM risk score, Thai diabetic risk score; MVPA, Moderate to vigorous intensity physical activity.

DISCUSSION

To maximize the effectiveness of the program, this intervention was emphasized individual approach by the stages of change in face-to-face counselling and technology-assisted via LINE application. The program demonstrated that participants in the experimental group had greater percentage of weight loss and better cardiometabolic parameters than the usual care. These results accorded to large randomized controlled trials including the US DPP (6), Thai DPP (7) and the Da Qing study (8) that could prevent T2DM in long term. Systematic reviews in 2017 reported MNT and weight loss are the strongest evidence altered clinical parameters (9). This program had percentage weight loss 3.11%. At least 3–5% of initial weight loss is clinically meaningful reductions in cardiovascular risk factors (10). Long term lifestyle modification program had average weight loss 5.6 kg in 3 years from the US DPP (6) and 1.5 kg in 2 years from the Thai DPP (7). The reduction in blood glucose and DM risk score was similar to 3-month prediabetes program with individualized MNT by dietitian in the US (5).

Energy balance with a reasonable meal plan by dietitian is the key to achieve weight goal. Energy requirement was calculated by individual with predictive equation. There is no ideal macronutrient distribution for people with prediabetes. Provided MNT was based on individual preferences and metabolic goals. In addition, quality of food patterns should be focused on dense nutrient-rich foods more than specific nutrients. Evidence suggests healthy food such as whole grains, legumes, nuts, fruits and vegetables, and minimal refined and processed foods

(11). The nutrient consumption in experimental group was changed by increasing fiber, and decreasing sugar and saturated fat. Increasing water intake was promoted by replacing sugary drink strategy and when exercise (12). Experimental group increased minutes of moderate-intensity physical activity above control group. Active physical activity improves insulin sensitivity and reduces abdominal fat. At least 150 min/week of moderate-intensity physical activity has beneficial effects in prediabetes (13).

CONCLUSION

This study proved that 12-week individual approach with MNT and technology-assisted intervention could reduce percentage of weight change. Proportion of IFG status and other cardiometabolic parameters also improved in experimental group over control group. Change of better outcomes was according to healthier diet pattern, more active physical activity. So intensive lifestyle intervention should be started after diagnosis of prediabetes to prevent or delay diabetes and upcoming complication.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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Original

Energy and Nutrient Intakes and Recommendations from a Survey of Children in a Coastal City in Central Japan

Nguyen Huong Giang¹, Nguyen Mai Phuong¹, Nguyen Van Diep¹, Nobuko Sarukura²,
Hitomi Takeichi², Ayami Sano², Sumiko Kamoshita², Yoko Ozaki³, Saori Okushima³,
Hitoshi Iizuka³, Masayo Kaneda⁵, Shigeru Yamamoto^{1,2*}

¹ *Jumonji University, Saitama, Japan*

² *Asian Nutrition and Food Culture Research Center, Saitama, Japan*

³ *Quest Computer, Tokyo Japan*

⁴ *Tokoha University, Hamamatsu City, Japan*

⁵ *Japan Society of Nutrition Teachers, Tokyo, Japan*

ABSTRACT: Background: Childhood obesity is a world-wide problem but Japan is an exception. We tried to find the dietary factors for this through a nutrition survey in Japan. **Methods:** A cross-sectional dietary survey was conducted in Okazaki City, a mid-size city, in the central part of Japan and facing the Pacific Ocean. The subjects were 10 year old children (35 boys, 30 girls) and 13 year old children (39 boys, 33 girls). Height and weight were measured. Energy and nutrient intakes were measured by the photograph method using Calorie Smile software on 2 non-consecutive days including 1 school day and 1 weekend day. **Results:** Weight for height was mostly within the normal range (within 0.8-1.2 mean). However, the average energy intake was lower than the recommended level, especially for the older children. Protein intake was adequate if compared with the recommendation in grams but was deficient when compared with the recommended value as percentage of energy (13-20%). Average lipid intake was close to the upper limit of lipid recommendation (30% of energy), indicating that about half of the students took more than the upper limit. Dietary fiber intake did not reach the recommended values. Ca intake was close to the recommended amount on the school day, but significantly lower on the weekend day. Energy and nutrient intakes were lower on the weekend day than on the weekday. **Conclusion:** Despite the lower energy intake than recommendation, the weight for height of the children were mostly in the normal range, suggesting the energy requirements was too high. If the protein requirement is defined as 13-20% of energy recommendation, about 30% of children took lower than the minimum level, suggesting this method is improper. Results of energy and nutrients intakes and the recommendations were inconsistent and further studies are necessary to find the proper direction of child nutrition.

Key words: school children, energy, nutrients, intake, recommendation

INTRODUCTION

Childhood obesity is a world-wide problem but Japan is an exception. Among the 38 OECD member countries in 2018, the obesity rate of Japanese children was 17.5%, which was the second lowest (median 31.4%) (1). Obese children are at greater risk of developing hypertension and metabolic disorders. Psychologically, obesity can lead to poor self-esteem, eating disorders and depression. Childhood obesity is particularly concerning as it is a strong predictor of obesity in adulthood, which is linked to diabetes, heart disease and certain types of cancer (2). It is worth considering the factors in the low prevalence of obesity in Japanese children. From our previous study of 7-, 10-, and 13-year-old children in an area of western Japan, energy intake was lower than the recommendation, especially in older children (3). It is necessary to confirm these results in other parts of Japan and we conducted this study in a central part of Japan. We tried to evaluate the new method for DRI of protein in Japan. It is expressed as 13-20% of

protein is difficult to understand because among the various nutrients, the protein requirement has been most thoroughly studied mainly by nitrogen balance. This was never expressed as a percentage of energy. We should consider the fact that the protein requirement does not change in proportion to energy intake. According to the US/Canadian Dietary Reference Intakes, the recommendation for protein of 0.8 g protein/kg/d is “the average daily intake level that is sufficient to meet the nutrient requirement of nearly all (98%) healthy individuals (5). The panel also states that “no additional dietary protein is suggested for healthy adults undertaking resistance or endurance exercise According to the national nutrition survey in Japan, average protein intake of Japanese is about 1.2g/kg body weight, about 50% higher than the recommendation (6). In this study we tried to evaluate the energy and nutrient recommendations by comparing with the actual intakes ..

*Corresponding author: shigeruy@jumonji-u.ac.jp

METHODS

This was a cross-sectional dietary survey conducted in November 2018 at all elementary school and junior high schools in Okazaki City. Of the approximately 200 children who agreed to participate, 65 10-years old children (35 boys, 30 girls) and 72 13-years old children (39 boys, 33 girls) completed the survey. Children were asked to take photos of all food items and beverages consumed on two non-consecutive days (1 school day and 1 weekend day) and to send them using the Calorie Smile software with/without some notes (7) (Photo 1). Calorie Smile software was introduced to the children and their families before the data collection took place. The dietary survey was completed by the children themselves or with the help of an adult. To estimate size and weight of foods, foods were placed on squared paper and sized (Photo 2).

Using these photos, researchers estimated the weight of food, entered this into the software to calculate energy and nutrient intakes, and then compared them to the recommendations for Japanese. Typical dishes, with ingredients and weights are integrated into the software. When children's meals are different or they eat items other than those in the data base, adjustments can be made. SPSS was used to analyze the data. Ethical approval was obtained from the City Board of Education.



Photo 1. Calorie Smile software



Photo 2: Photos of meals sent by children

RESULTS

Figure 1 and 2 show the weight for height of 10 and 13 years old children, respectively. Obesity and thinness in Japanese children are defined as more than 20% or less than 20% of the standard weight for height, respectively. The red line is $\pm 20\%$ of standard body weight for height. In other words, the point between the two red lines is a normal weight child.

In 10 years old children only 4 boys and no girls were overweight and no boy and only 1 girl was underweight (Figure 1). The results indicate that weight for height of most of the children were normal.

In 13 years old children only 1 boy and 1 girl were overweight and 1 boy and no girl was underweight (Figure 2). The results indicate that weight for height of most of the children were normal.

These results indicate that most of the children in this city, their weight for height was within a normal range.

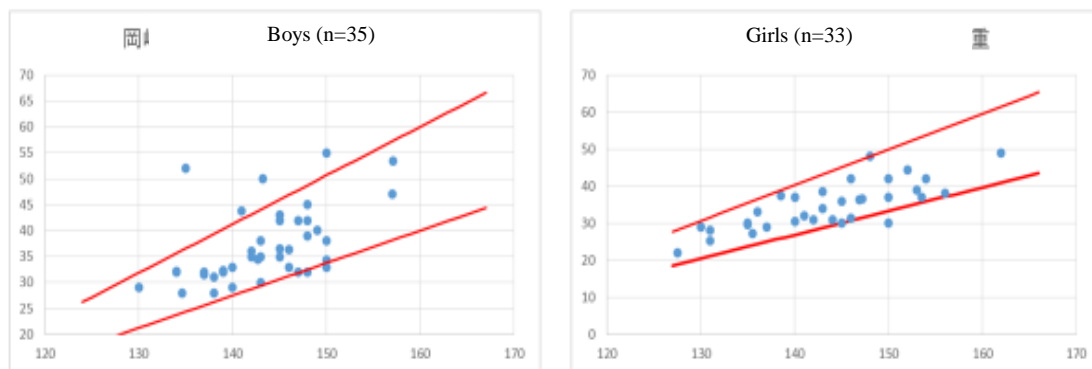


Figure 1: Weight for height of 10-year-old boys (left) and girls (right)

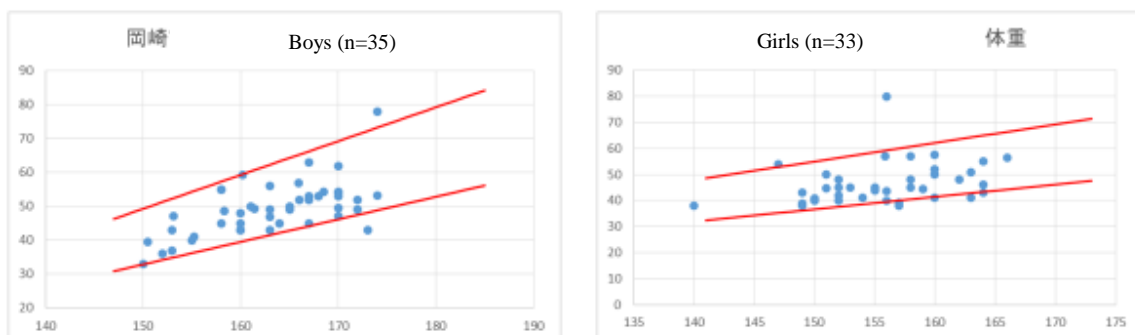


Figure 2: Weight for height of 13-year-old boys (left) and girls (right)

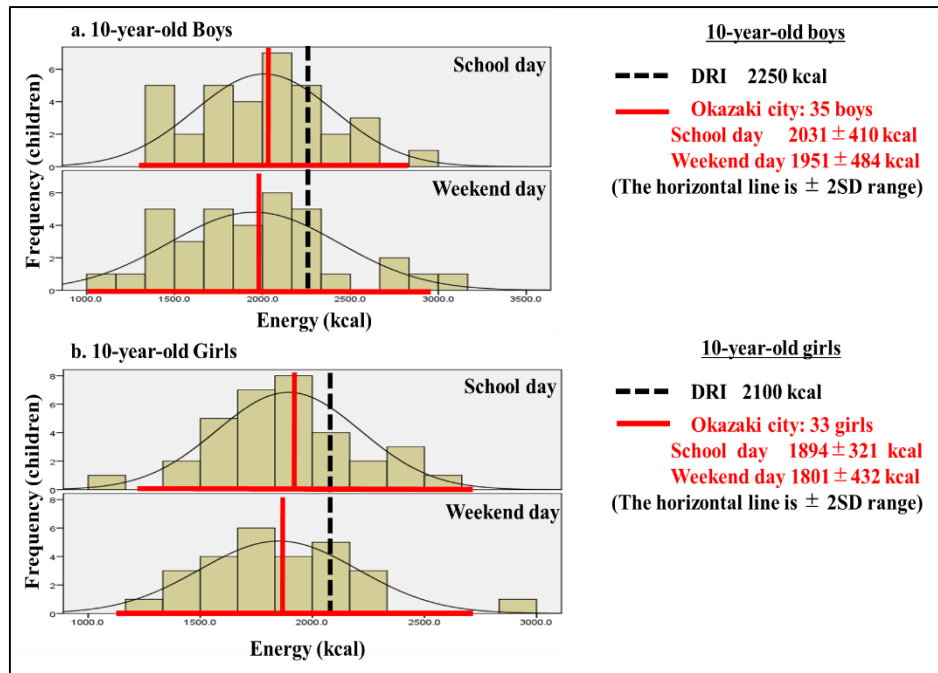


Figure 3: Energy intake of 10-year-old children

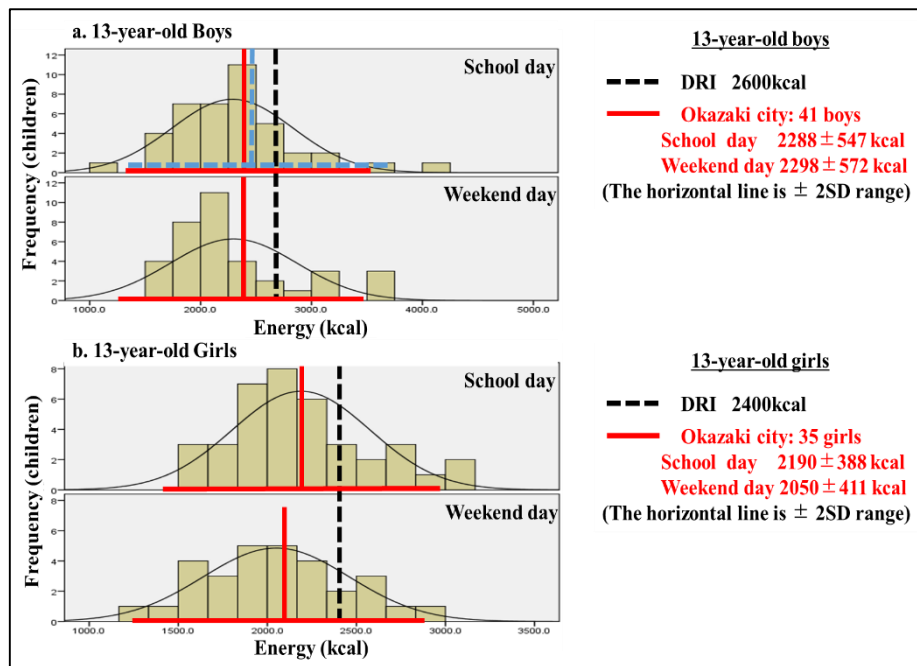


Figure 4: Energy intake of 13-year-old children

Figure 3 shows energy intake of 10-year-old children, the energy intake was lower than the recommendation about 200 kcal on school day, and about 300 kcal on weekend day. Figure 4 presents energy intake of 13-year-old children. For 13-year-old

boys, energy intake was about 300 kcal lower than the recommendation in both days. For 13-year-old girls, energy intake was about 200 kcal and 350 kcal lower than the standard on school day and weekend day, respectively.

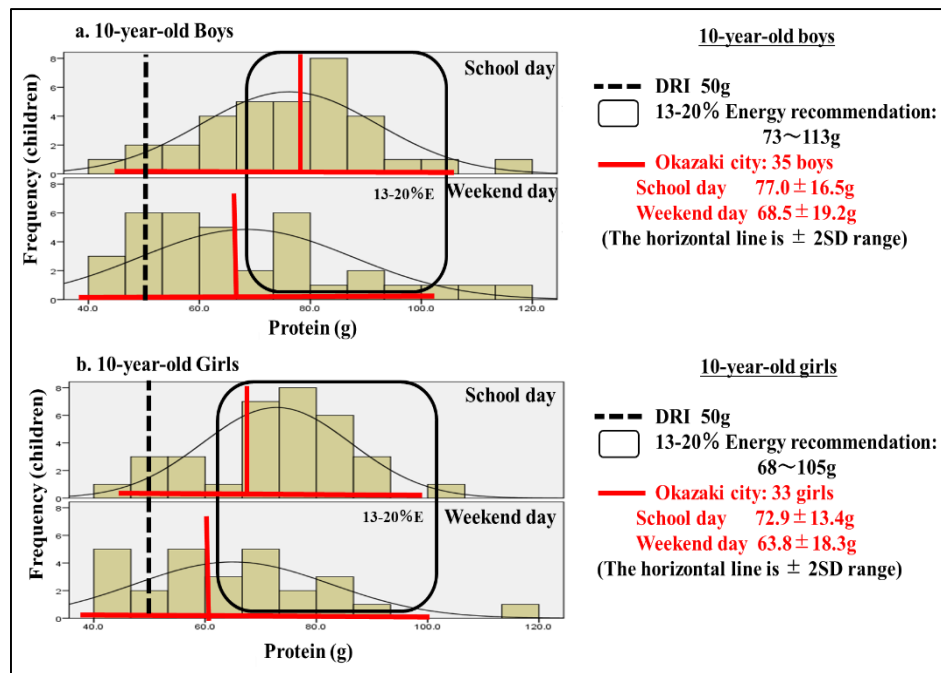


Figure 5: Protein intake of 10-year-old children

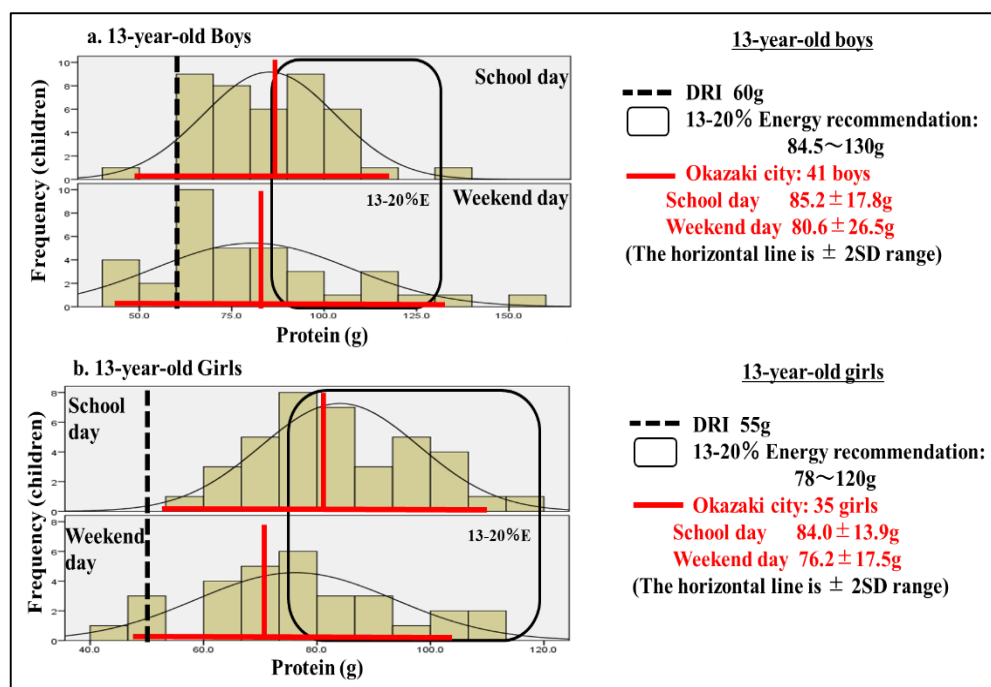


Figure 6: Protein intake of 13-year-old children

Figure 5 and 6 shows the protein intake of 10-year-old and 13-year-old children, respectively. Comparing Okazaki's data of protein intake with a target amount of 13-20% energy recommendation, many children were deficient. On the other hand, as before the revise, when expressed the recommendation in absolute gram

(black bar), most children were sufficient. For example, for 10-year-old boy, the actual protein intake in weekend day was 68.5g, higher than the requirement in gram (60g), but lower than the requirement in percentage of energy (13-20%E = 73-113g).

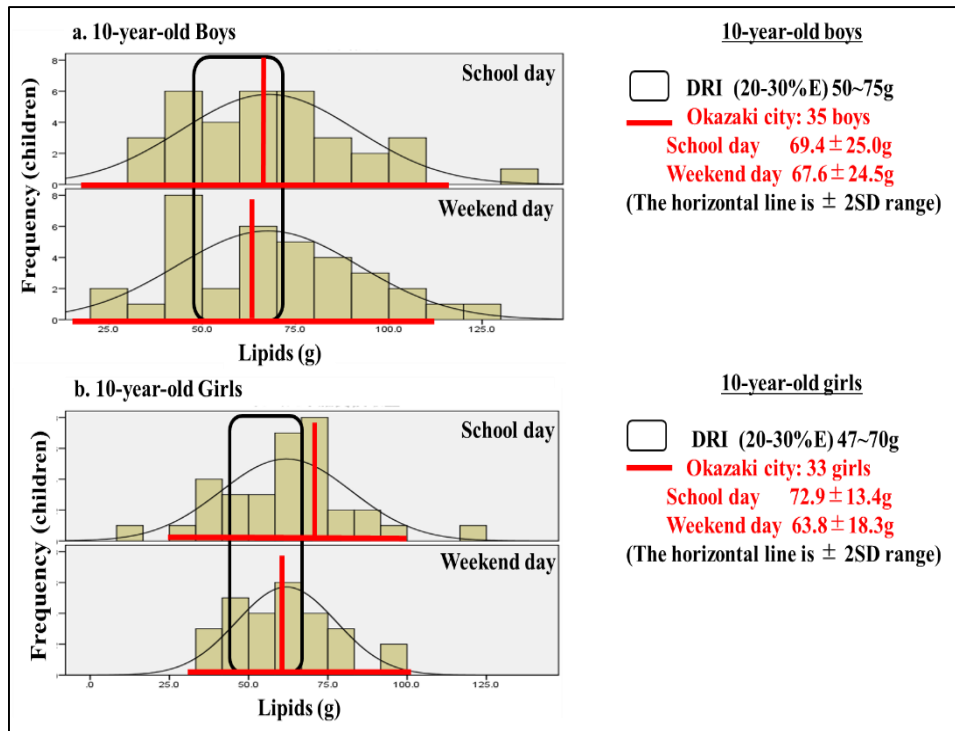


Figure 7: Lipid intake of 10-year-old children

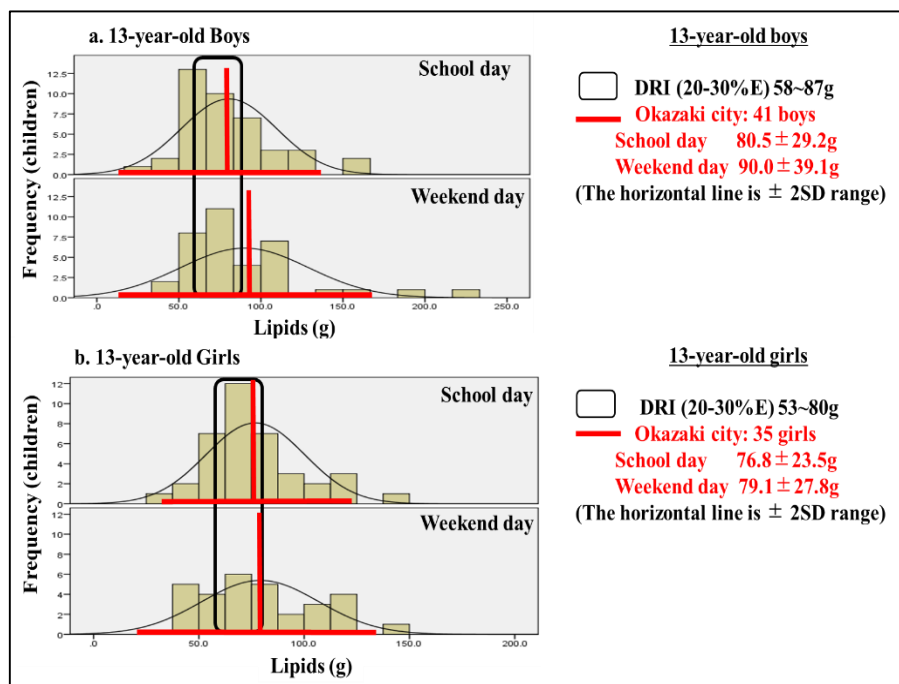


Figure 8: Lipid intake of 13-year-old children

Figure 7 and 8 presents the lipid intake of 10-year-old and 13-year-old children, respectively. Lipid intake was shown to be widespread on both sides of the black frame (dietary intake

recommendation criteria), with some being higher and some being lower than recommended. However, if we see the average intakes, the intakes of children were close to the upper limit of the recommendation.

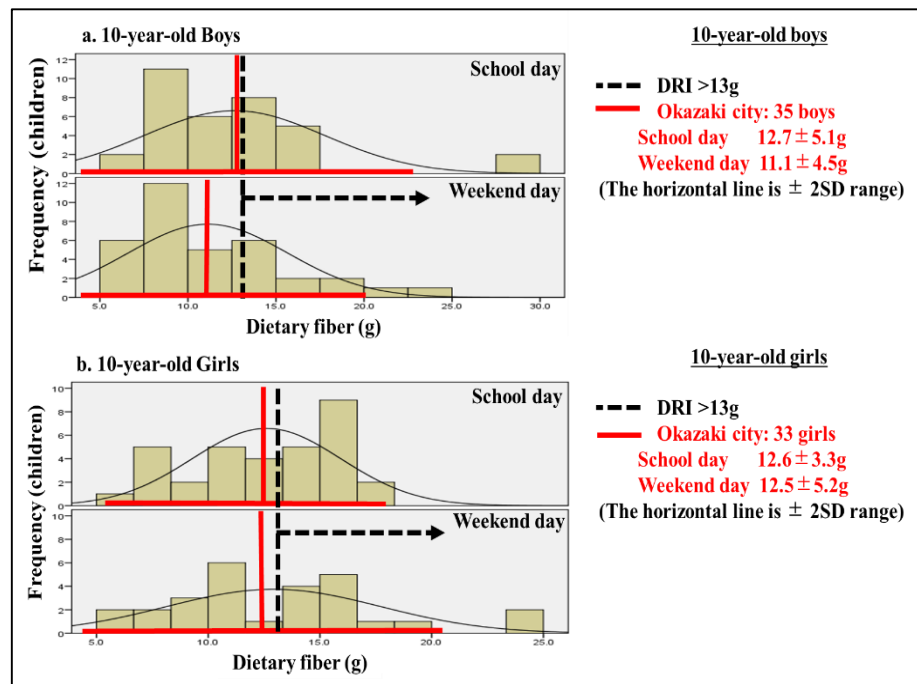


Figure 9: Dietary fiber intake of 10-year-old children

Figure 9 shows dietary fiber intake of 10-year-old children. The mean dietary fiber intake in fifth grade was close to the recommended amount. However, if

we look at the figure, about half of the children consumed less than requirement.

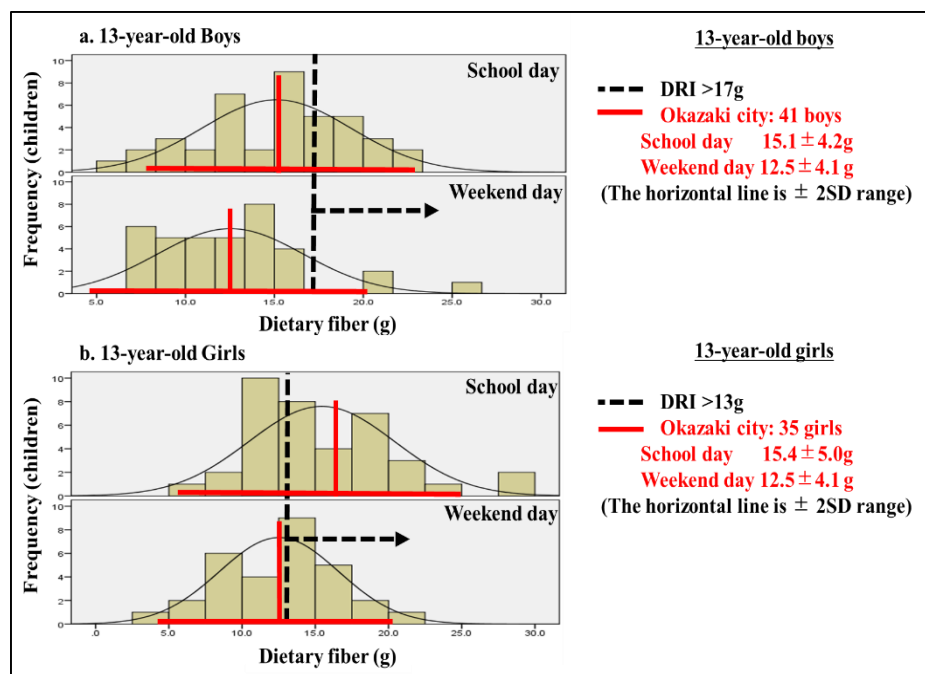


Figure 10: Dietary fiber intake of 13-year-old children

Figure 10 shows dietary fiber intake of 13-year-old children. Unlike fifth graders, dietary fiber intake in

13-year-old children was very low, especially, on the day without school lunch.

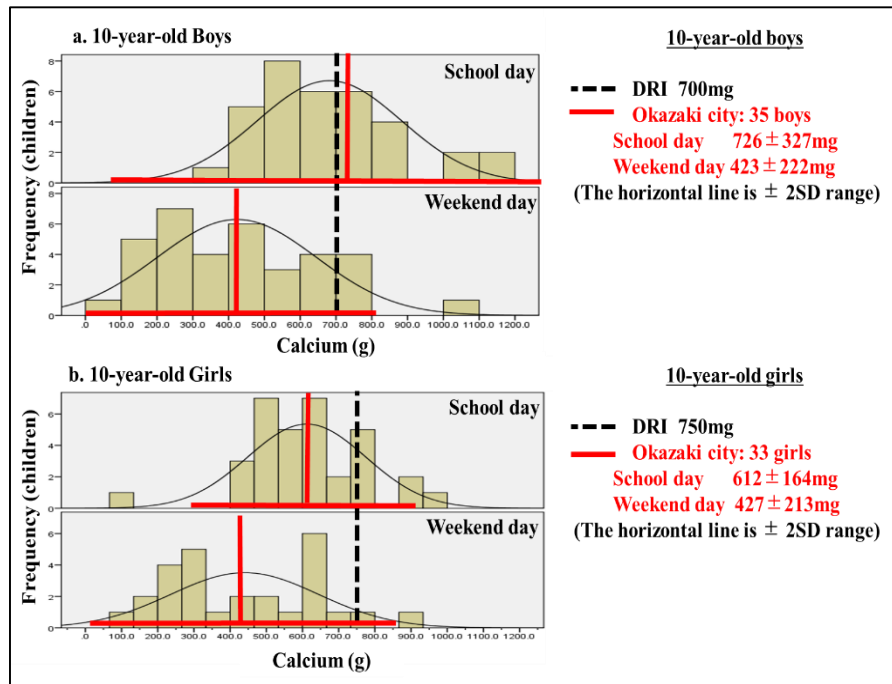


Figure 13: Calcium intake of 10-year-old children

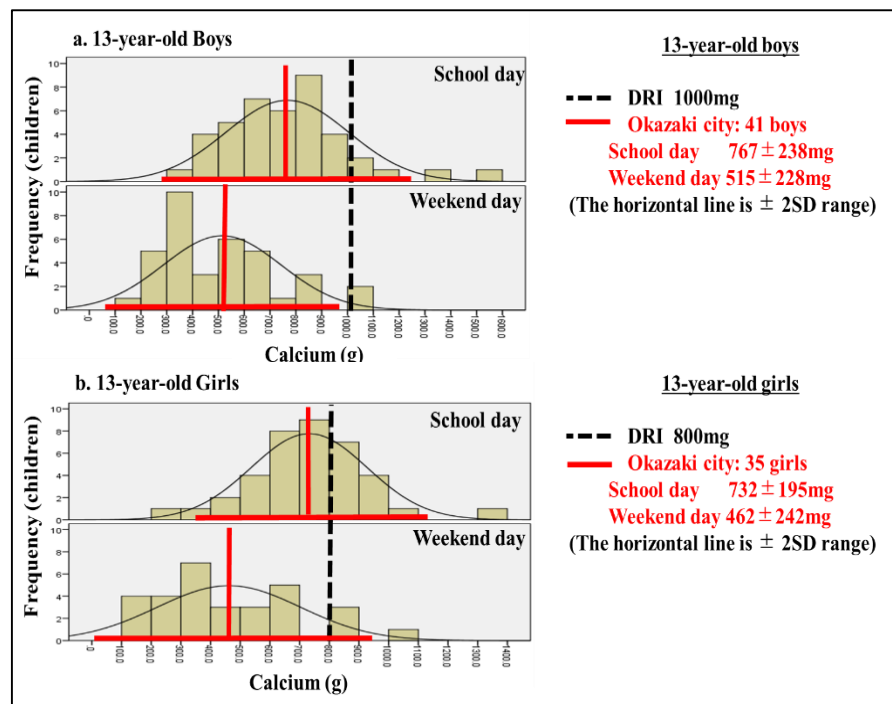


Figure 14: Calcium intake of 13-year-old children

Figure 13 and 14 show the Calcium intake of 10-year-old and 13-year-old children, respectively. Calcium intake was close to the recommended

amount on school day. However, it was significantly lower on weekend day.

DISCUSSION

Our study showed that despite a low energy intake relative to the recommendation, the height and weight of the children were mostly in the normal range. Only 4 out of 68 children aged 10 years and 4 out of 76 children aged 13 years were not within the normal range (Figure 1 and 2).

Energy intakes of 10- and 13-year-old children were about 200 kcal and 300 kcal lower than the recommendations, respectively (Figure 3 and 4). About 70% of the children had an energy intake that was lower than the recommendation. We observed similar results in a 7-day nutrition survey of 200 children in a city in western Japan (2). These results indicate that the current energy recommendation does not fit well with the actual energy intake. In fact, the current energy requirement is based primarily on the results of studies done more than 50 years ago when the level of physical activity was much higher than now. In Japan, the estimated energy requirement has been revised every 5 years, but the basic data are old and only their expression has been changed, sometimes per body surface area, sometimes per body weight, etc. If children can maintain their health with a lower energy intake than the recommendation, the professionals must reconsider that children do more physical activity or decreased the recommendation.

The New protein recommendation was announced as 13 – 20% of energy. If we use these values, more than 30% of children consume less protein than the recommendation (Figure 4 and 5). However, if we use the traditional method (g protein), most of the children satisfied the requirements. There have been very few studies of protein requirements over the last 50 years and they were never estimated using energy intake. Lipids and carbohydrate are usually recommended as percentages of energy, perhaps because their main role is the supply of energy. However, protein is not the same as these nutrients. It is very difficult to estimate the protein requirement using percentages of energy requirements and recommendations.

Lipid intake is recommended as 20-30% of energy. The average lipid intake of children was close to the upper limit of lipid recommendation (Figure 7 and 8). It means that about half of the children took high lipid foods. As we discussed above, there is a possibility that the energy recommendation is too high, which means that if the proper energy recommendation is lower than the present recommendation, more than 50% of children take the upper limit of lipids.

Both fiber (Figure 9 and 10) and Ca (Figure 11 and 12) intakes were lower than the recommendation, especially week end days when they did not have school lunch. It means that school lunch helps to increase fiber and Ca intakes.

In conclusion, there have been poor studies about the dietary recommendations, mostly more than half a century. During the time, life-style of Japanese has changed a lot. New studies and reconsideration of the present recommendations must be studied.

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ORIGINAL

The Employment Status and the Need for Issuing Practising Certificates to Bachelors of Nutrition in Vietnam in 2021

Yen Ngoc Ma^{1,2*}, Ninh Thi Khanh Tran²,
Thao Phuong Tran^{2,3}, Huong Thi Le^{1,2}, Linh Thuy Nguyen^{1,2}

¹ *Department of Nutrition and Dietetics, Hanoi Medical University Hospital, Hanoi, Vietnam.*

² *Hanoi Medical University, Hanoi, Vietnam*

³ *Jumonji University, Saitama 352-8510, Japan.*

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ABSTRACT: The objectives of this research were to study the occupational situation and the demand for a practising certificate to dietitians at Hanoi Medical University (HMU) in Vietnam in 2021. The cross-sectional study by an online survey was conducted on 239 subjects (23.3 ± 1.9 years old, 88.3% female) of 6 Bachelor of Nutrition (BN) courses. In terms of the survey on workplaces for graduates of the first 4 years surveyed, the results showed that hospital dietitians account for one-third of the total number of dietitians (55/165). And this rate is a significant downward trend from 52.3% (the first class from 2013) to 15.8% (the fourth class from 2016). The percentages of dietitians working in food companies or in postgraduate studies were 13.9% (23/165) and 10.3% (17/165). No dietitians were working in the fields of School Nutrition and Food Hygiene and Safety. The percentage of dietitians working outside the field or unemployed was increasing, from 6.8% (the first BN from 2013) to 26.3% (the fourth BN from 2016). For the survey on issues related to the demand for practising certificates for 6 BN classes, some of the difficulties they faced when working without a practising certificate included the fact that over 80% of dietitians claimed that they were not allowed to participate in consultation and assessment of the nutritional status of patients. More than half of the dietitians (55.8%) felt that it was difficult to give nutritional advice to patients. About the degree of necessity for a practising certificate, nearly 90% of BNs thought that a practising certificate was necessary for positions that employ dietitians as part of their human resources, such as specialized/general hospitals; Community nutrition care and support facilities; School nutrition; management agencies/Ministry of Health/Department of Health; Center for Disease Control (CDC); Universities/colleges; food companies, canteens, and fitness centers/gymnasiums. In conclusion, the trend of dietitians who work in a clinical nutrition field is decreasing; almost no dietitians are employed in the school nutrition and food hygiene and safety fields. The rate of unemployment and side jobs is increasing significantly. Almost all BNs find it difficult to work without a practising certificate. The results show the high level of necessity of granting a license for BN in all fields of nutrition, especially in clinical nutrition.

Key words Bachelor of Nutrition, Practising certificate, Vietnam.

INTRODUCTION

Nutrition is a career related to food and human health, subdivided into many areas such as clinical nutrition, community nutrition, school nutrition, food hygiene and safety, and nutritional science research (1,2). The demand for dietitians increases every year due to awareness of the key role of nutrition in supporting treatment in hospitals and health areas in the community. In the healthcare system, human nutrition training began in the 19th century in the United Kingdom and continued to expand to the United States throughout the 20th century. World-wide, the system of accreditation and certification of dietitians' practice has existed for a long time. The first registered dietitian qualification examination in Japan was administered in 1987, and it became a regular exam given once a year. At present, Japan has 25 dietitians per 100,000 residents. After decades of development, human nutrition has become a thriving system that is widely recognized by professionals and the public. In Vietnam, in 2006, Hai

Duong Medical Technical College, now part of Hai Duong Medical Technology University, began to train Nutrition Technicians, but the training program did not gain acceptance by society, so the school stopped this program after only 3 classes of students. By 2013, because of being aware of the role, necessity, and urgency of dietetics, the Ministry of Education and Training permitted the enrollment and specialized training of Bachelor of Nutrition (BN) students at HMU, with the job code 7720401 (3,4). According to Joint Circular No. 28/2015/TTLT-BYT-BNV, a BN is a person who is trained with the ability to work in many positions related to nutrition in society (1). However, unlike some countries in the region and the world, Vietnamese dietitians have not currently been granted a practising certificate. This has caused some difficulties in the job, especially in positions that require specialized knowledge and outstanding skills in nutrition diagnosis and intervention. As a leading institution in the training of BN, by 2021 Hanoi Medical University has trained 8

*To whom correspondence should be addressed:
mangocvenly@gmail.com

classes of BN students in Vietnam, of which 4 courses graduated at least 165 dietitians. Therefore, what are the difficulties faced by dietitians who have not been issued a practising certificate during their work. We conducted surveys on the demand for granting a registered dietitian's license from the first 6 BN classes in Vietnam and the employment situation of those dietitians who have been graduated for at least one year.

METHODS

Study setting and subjects

The study was designed to be a cross-sectional study and was conducted during one month from May 2021 to June 2021. The study collected data only with the consent of the research subjects to participate. All information is for research purposes only. We used a non-probabilistic and purposive sampling method in this study. The study included participants who are BNs of the full-time nutrition course of HMU from the first course (2013 – 2017) to the sixth course (2018 – 2022) (278 subjects) and who have fully understood the explanation of the survey and agreed to take part in the online survey.

Data collection

We collected data by using online questionnaires that included an explanation of the meaning and objectives of the study. These questionnaires were sent to class monitors and group leaders of each class. They had responsibility for announcements, supervising, and encouraging the members to complete these surveys.

For the occupational situation objectives of BN, we collected the information on subjects who were BN from the full-time nutrition course of HMU from the first (2013 - 2017) to the fourth course (2016 - 2020). They had been graduated from HMU for at least one year and had the opportunity to work in various institutions. The information includes (1) General information about age/gender/year of graduation; (2) workplaces at present: Hospitals / Universities / Colleges (lecturers or researchers) / School nutrition (school lunch) / Nutrition clinics / food's companies / Management agencies of the Ministry of Health/ Department of health / Sport Nutrition/ The Gymnastic Center / Center for Disease Control (CDC) / Postgraduate courses/ unemployment/ side jobs/ no response.

With regard to the demand for issuing a practising certificate to BN, we collected the information on subjects who are BN from the full-time nutrition course of HMU from the first (2013 - 2017) to the sixth course (2018 - 2022), of which the fifth class is newly - graduated students from HMU (2021), and the sixth are seniors. The information includes: (1) General information about age/gender/year of graduation (2) Dietitians' opinions on which workplaces they think should issue the practising certificate (3) Dietitians' opinion on the basis/bases on which a certificate should be issued (Using a Likert scale).

Statistical analysis

Categorical and quantitative variables were expressed as the number of subjects (percentage), and mean (standard deviation), respectively.

RESULTS

There were 239 subjects (23.3 ± 1.9 years old, 88.3% female) who participated in this study in total, 278 current and graduated students from 6 BN courses.

The number of dietitians from four classes working in nutrition departments/centers in hospitals accounts for the highest number of total BN graduates (55/165). However, this trend was gradually decreasing, specifically: the number of the first class of dietitians working in hospitals accounts for the highest percentage (52.3%), but it decreases to 32.4% (the second course), 30.6% (the third course), and finally only 15.8%, equivalent to 6 dietitians for the fourth class. Currently, there are no dietitians from any of the 4 classes working in the field of School Nutrition. The percentage of BNs working in Food Companies from the first class to the fourth class was 9.1%, 20.6%, 4.1%, 26.3%, respectively. The percentage of dietitians working in nutrition clinics was highest for the third class at 14.3%. The figure for dietitians who continued in postgraduate training programs (Master, Ph.D.) was highest for the fourth class at 18.4%, equivalent to 7 dietitians. The proportion of BNs working in other field/unemployment for the first class and the second class is 6.8% and 8.7%, respectively, and then this trend rises significantly for the third class and the fourth class at 26.5% and 26.3 %, respectively.

Figure 2 shows that 97.8% of BN believe that a practising certificate is necessary for working positions in general and in specialized hospitals; 93.1% of BN believe that a practising certificate is necessary for working in health care and nutrition support facilities in the community. The percentage of BNs who think that a practising certificate is necessary to work in the field of School Nutrition; the management agencies of the Ministry of Health, the Department of Health; CDC; universities and colleges (research, teaching) is 83.5%, 83.5%, 77.9% respectively. 73.6% of BN think that a practising certificate is necessary for positions in food companies and 66.2% of BN think that it is necessary to be granted a practising certificate for working in a collective kitchen.

The results of figure 3 show that 86.6% of BN found it difficult when they could not participate in nutrition consultations in health facilities; 82.3% had difficulty when they could not examine and assess the nutritional status of patients. The percentages of BN who had difficulties when they were not allowed to give nutrition advice and were not permitted to communicate nutrition education to patients were 55.8% and 43.7%, respectively. There were only 1.7% of BN who had other difficulties such as not being licensed to launch a nutrition clinic, being equated with those selling functional foods, not being respected when working in healthcare facilities and so on.

A major proportion of BN believe that a practising certificate is would provide a legal basis to protect dietitians in professional activities in the field of nutrition; 87.1% of BN think that this is necessary and very necessary, and only 11.7% think that this is not necessary. The percentage of BN who think that a practising certificate as the basis for certifying that health workers are qualified to participate in

professional activities is necessary and very necessary accounts for 87.5%; only 11.7% think it is not necessary. The practice certificate is the basis for the state management agency to manage the profession and to define the scope of the practice of the practitioner. 86.6% of BN think that this is necessary and very

necessary, while only 13.1% of them are considered normal and unnecessary. The practice certificate should be the basis for the authorities to recognize the job position and function of the BN, is assessed by 87.5% of BN as necessary and very necessary, and only 11.7% of BN think this is not really necessary.

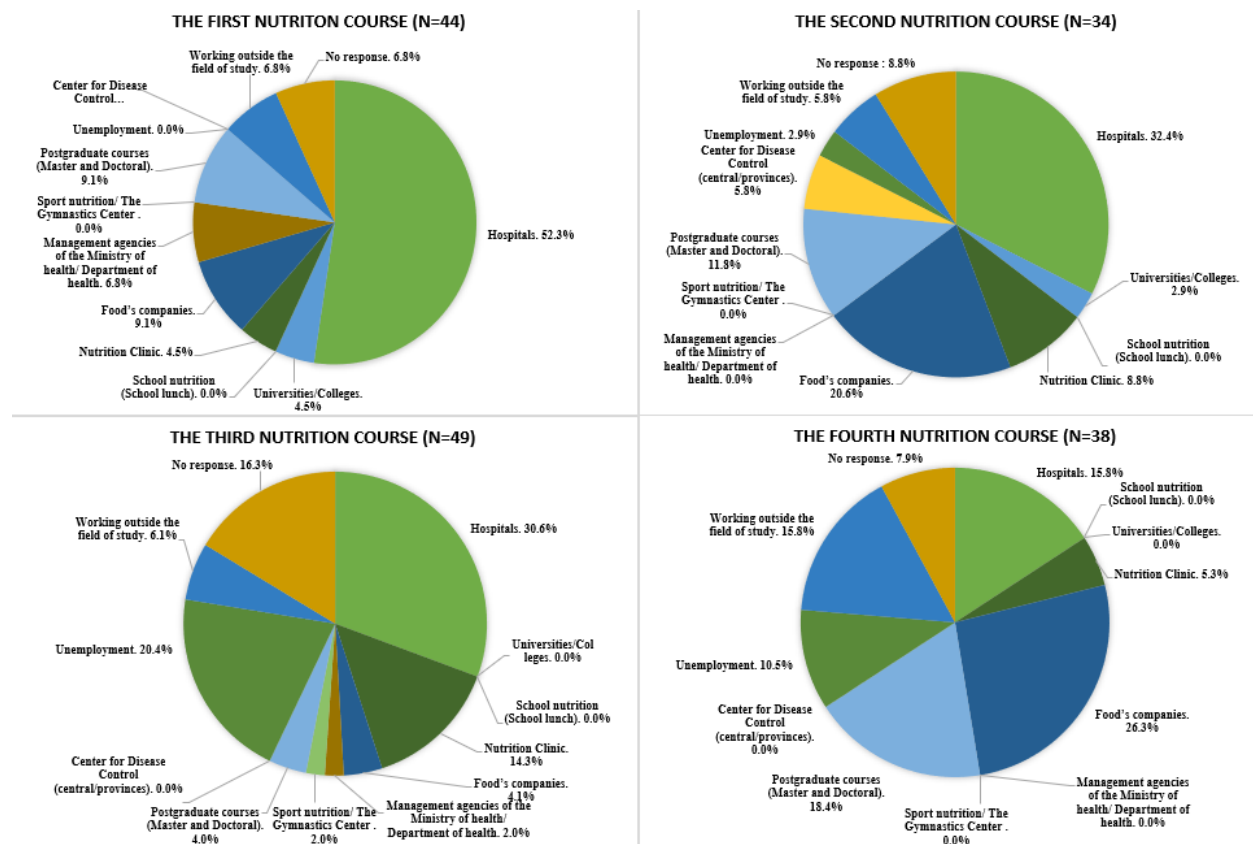


Figure 1. The employment status of the first four classes of Bachelor of Nutrition (The first class to the fourth class)

Practising Certificates for Vietnamese Dietitians

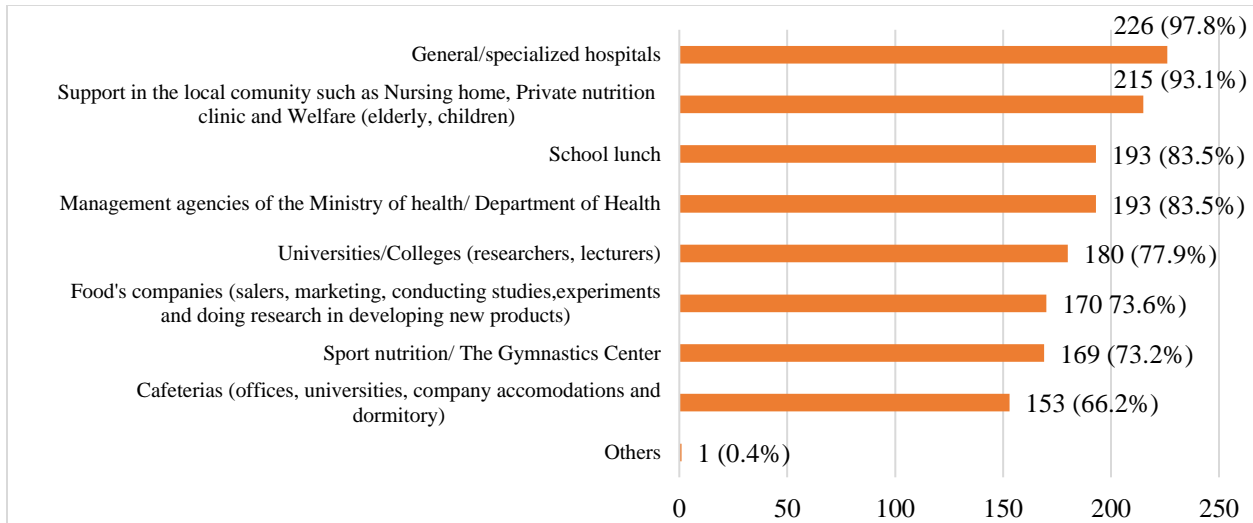


Figure 2. The percentage of workplaces for which a Bachelor of Nutrition believes that a practising certificate is required (n=231)

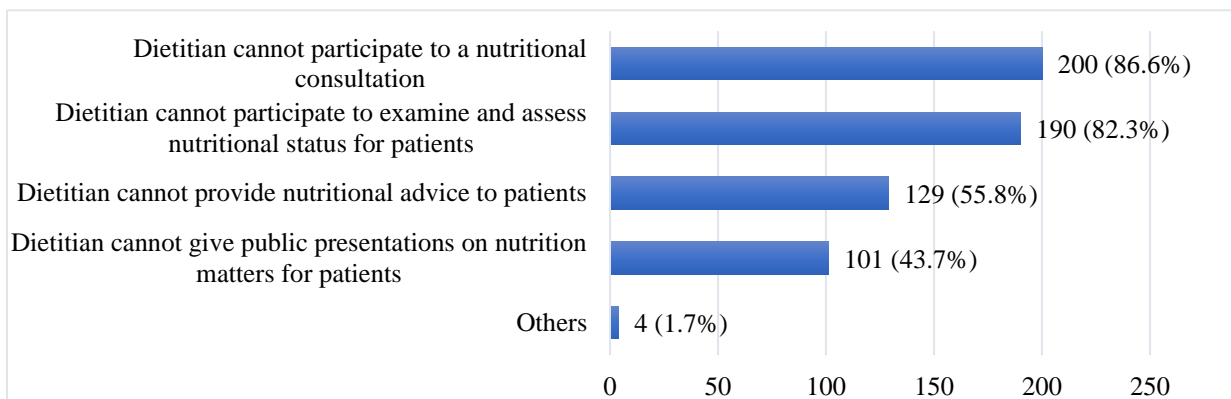


Figure 3. The main difficulties that Bachelor of Nutrition faces when they work without a practising certificate (n=231)

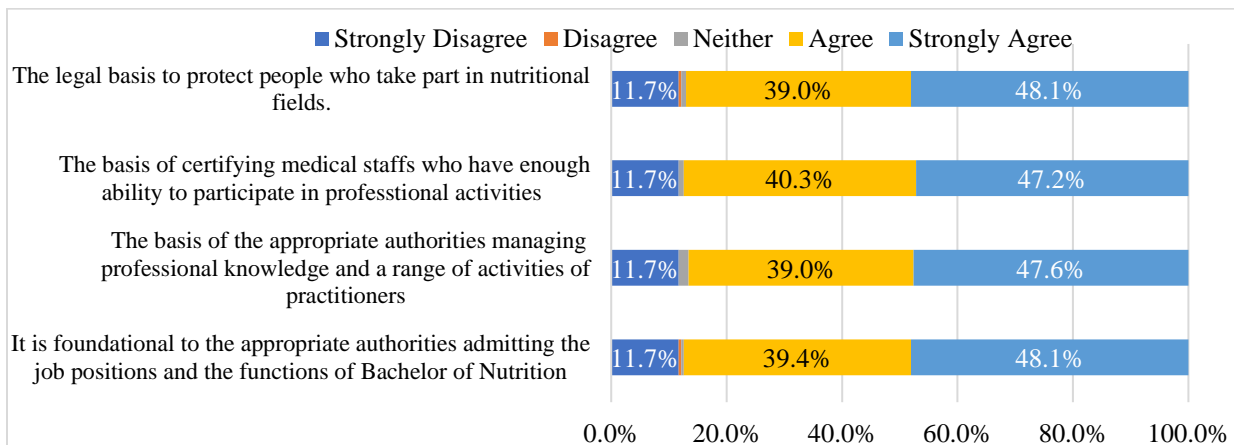


Figure 4. The level of necessary of the foundations and the bases to issue a practising certificate that follow the opinions from the first course to the sixth course Bachelor of Nutrition (Likert Scale)

DISCUSSION

In Vietnam, the system of training for a bachelor's degree in nutrition began in 2013 at Hanoi Medical University (HMU). The survey of workplace distribution of students from 4 BN classes (the 1st to the 4th year graduates from the BN course at HMU) who have been graduated at least one year showed the percentage of dietitians working in the field of clinical nutrition in hospitals has tended to gradually decrease. This trend shows that the number of dietitians with regular training struggle to meet the requirements for the number of dietitians per each sick-bed as required by circular No.18 of November 2020 on hospital nutrition (5). There are several reasons associated with this trend such as low income, lack of supportive policies and an insufficient attention from the board of managers in hospitals. In Japan, according to a statistical report in 2018, there were about 40,000 hospital dietitians, which accounted for the highest figure among all nutritional fields (6). However, according to a survey conducted by the National Institute of Nutrition in 2018, in Vietnam, nearly half of provincial hospitals do not have a department or team of Nutrition, and there are almost no Nutrition Departments in district health centers. More than 3/5 of the Departments of Nutrition do not have employees with a university degree, and the number of nutrition staff is from 6 to 10 people, but the number of the staff members with university degrees accounts for less than 50%. In addition, there are very few dietitians who labor in other areas such as community nutrition and food hygiene. Notably no dietitians from any of the four classes are working in the field of school lunches. In contrast, in 2014, 12,143 dietitians were working in the field of school lunch and among them there were approximately 4,703 employees who worked as nutrition teachers in Japan (7). In terms of school nutrition, school dietitians have a key role in monitoring food safety, making balanced diets, and conducting nutrition education. They also cooperate with other teachers and students' families to encourage enhanced dietary guidance in order to create solutions for improving insufficient vitamin and mineral conditions, and controlling overweight and obesity in school-age children. This is the case for Vietnam at present, according to the national nutrition survey 2019 - 2020, the prevalence of overweight and obesity increased from 8.5% in 2010 to 19% in 2020 in which the prevalence is 26.8% in urban areas, 18.3% in rural and 6.9% in mountainous areas (8). The prevalence is highest in the large metropolises, particularly in Ho Chi Minh City (above 50%) and Hanoi (above 41%). Therefore, the government should have policies to encourage school nutrition development. In addition, the proportion of dietitians who work in food companies slightly increased during the period from 2017 to 2020. There are around 10% (equivalent to 17 dietitians) of the dietitians who are continuing to study in postgraduate programs, which could lead to a rise in high-quality human resources in the nutritional fields in Vietnam. It is clear that the figure for unemployment and side jobs dramatically increased from 6.8% for the first class to 26.3% for the fourth class. Currently, the demand for nutritional resources in Vietnam is

increasing compared to the previous decades. But the unemployment rate is still quite high, which shows the limitations and inadequate attention paid to the position of dietitians in society. These findings show that the authorities should introduce more focused policies on the development of nutritional human resources and expand the development of clinical nutrition in district and provincial areas. The government also should improve the quality of school nutrition in order to set the goal of building awareness and knowledge about the importance of nutrition in the primary students and at the same time offer working opportunities for school dietitians. One of the greatest contributions to the development of the nutrition major worldwide was the introduction of the certificate of practice for "dietitians" in 1923 in the United States, so nutrition was officially recognized as a career (9). A registered dietitian must have a minimum of a bachelor's degree or higher degree in nutrition and food science. These standards were adopted by The International Confederation of Dietetic Associations (ICDA) and many countries such as the United States, the United Kingdom, Japan, and China. In China, the education of dietitians (not registered) majoring in home economics was established in the 1920s (10). However, there was a lack of a registered dietitian accreditation system for dietitians, which caused inadequate government management some types of nutritional training agencies. As a result, there were a large number of nutritionists or dietitians who are trained in informal programs such as a short training period (3 to 6 months of class training), unqualified nutrition instructors, and no internship practice in the nutritional institutes. These "dietitians" with minimal training in nutrition and no practice, negatively impacted the reputation of dietitians among the public and hampered the development of nutrition and dietetics in China. Therefore, after many years of huge effort, in 2016, China's government organized the first registered dietitian qualification examination (11). The exam was successfully carried out in 2016, in the examination center of Shanghai Jiao Tong University School of Medicine (12).

In Vietnam, there are 7 universities which have nutritional training programs to date of which 4 universities have graduated students who take part in the labor market. Among these 4 universities, HMU also has the highest number of dietitians with 4 graduated classes who have at least 1 year of experience working, and 1 class has just graduated in 2021. The results from our survey show that most BNs paid a lot of attention to licensing practising certificates for their career. In terms of working without a practising certificate, more than 80% of BN find it difficult to participate in nutritional consultations and assessment of nutritional status for patients. There are approximately 50% of BN who could not make public presentations on healthcare matters or counsel nutrition for patients. These facts point out that the number of dietitians working professionally in Vietnam is not high, and formal nutrition care for patients has not been developed. Furthermore, a small proportion of BN have been misunderstood by society and consider untruthful or a functional food businessperson, have not been

respected, have been thought to not have an obvious career title and so on. In terms of the four main aspects of the needs need for a practising certificate for BN: “The legal basis to protect people who take part in nutritional fields”, “The basis of certifying medical staff who have enough ability to participate in professional activities”, “The basis for the appropriate authorities managing professional knowledge and a range of activities of practitioners”, “It is foundational to the appropriate authorities admitting the job positions and the functions of BN”, this survey revealed that there are nearly 90% of BN who believe that it is necessary and very necessary to issue a practising certificate in nutrition career. Only about 10% of BN think that it is unnecessary and very unnecessary to issue a practising certificate; most of these BNs are working outside of nutrition fields or unemployed. This makes clear the expectation to be granted a practising certificate for BN to protect and to confirm its functions while working. With the positions in general or specialized hospitals, healthcare facilities, and the nutrition community, over 93% of BN agree with the opinion that “a practising certificate should be provided to BN”. Over 84% of BN believe that a practising certificate is needed for job positions such as school nutrition, management agencies of the Ministry of Health/Department of Health, and the Center for Disease Control (CDC). The figure for Universities/Colleges (researchers, lecturers) and the food companies was above 70%. The lowest figure for working at at canteens and Gymnastics Centers is around 62%. However, no dietitians were working in the field of food hygiene and safety or at gymnastics centers and therefore these areas could receive less attention from BN compared to other areas. In general, almost all BN agree that a practising certificate should be issued for most fields of nutrition. This is completely aligned with the trend of the leading countries in nutrition development. In Japan, practising certificates are not only issued to employees working in a medical field but also in other fields if they pass the national examination for registered dietitians (13). With the innovation in the “Dietitians Act” in Japan, this was the basic foundation for establishing the “Registered Dietitian system” in 1962, which contributed to developing nutrition services for each Japanese individual. Therefore, Japan is one of nations which has the highest life expectancy in the world. Thus practising certificates are not only a document for confirming the competences and professional qualifications of BN, but it is also a great motivation to help the nutrition industry grow and ensure greater future prosperity.

In conclusion, as a consequence of the employment status of BN, the number of dietitians who work in a clinical nutrition field is decreasing, almost no dietitians are employed in the school nutrition and food hygiene and safety fields. The rate of unemployment and side jobs is significantly increasing. Almost all BNs find it difficult to work without a practising certificate. The results show the very high necessity of granting the a license for BN in all fields of nutrition, especially in clinical nutrition.

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