



The Proceeding of 6th International Nutrition and Health Symposium

October, 2022

COMPREHENSION AND ACCEPTANCE OF INTERNATIONAL DYSPHAGIA DIET STANDARDIZATION INITIATIVE (IDDSI) AMONG FOOD SERVICE DIETITIAN IN MINISTRY OF HEALTH MALAYSIA HOSPITALS

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Abstract

For all ages, the International Dysphagia Diet Standardization Initiative (IDDSI) offers standardization criteria for thickened liquids and food with altered textures specifically for dysphagia patients. In Malaysia, no research has been done on IDDSI yet. This study investigated how Malaysian food service dietitians perceived and accepted IDDSI. Three focus group (FGDs) sessions included twelve food service dietitians who work at Ministry of Health hospitals. The participants are generally familiar with the IDDSI, although they are not as familiar with the testing methods used or size descriptors for each level. Low comprehension and awareness, a lack of training and direction, a lack of time, labor, and equipment were all obstacles to implementing IDDSI. By increasing awareness and knowledge of IDDSI, offering training that includes every staff member, and implementing step-by-step techniques are suggested to overcome barriers. Because the scale of motivation level was also neutral, the acceptance of IDDSI is however neutral.

Keywords: *IDDSI, food service dietitian, implementation, acceptance, understanding, Malaysia*

INTRODUCTION

Dysphagia is the condition of swallowing difficulty (17). Dysphagia can be defined as abnormal delay in transit of liquid or solid bolus during swallowing and it can be a temporary condition or permanent condition (1). Swallowing can be defined as movement of food through the oral cavity, pharynx and esophagus into the stomach with suitable rate and speed (8). Swallowing processes are divided into 4 phases which are oral preparatory, oral propulsive, pharyngeal and esophageal phase (8).

Swallowing is 'the function of clearing food and drink through the oral cavity, pharynx and esophagus into the stomach at an appropriate rate and speed.'(8). Dysphagia happens when there is difficulty and abnormality during the process. Oropharyngeal dysphagia is a clinical condition where patients complain of blockage, 'sticky' and uncomfortable feeling in the throat (17). Complication of oropharyngeal dysphagia can happen as aspiration, chest infections, dehydration, malnutrition and death (25). Aspiration occurs when food or drink enter the air passageway (25).

Malnutrition and dehydration happen because of reduction of food intake (25). This happens as patients lose appetite and lose ability to swallow as it is uncomfortable and can increase risk of complications. As to help and treat dysphagia complications, diet modified texture is one of the ways to help patients avoid malnutrition and dehydration by changing food texture and liquid thickness (15).

Diet modified texture are diet interventions for adults, children and elderly with dysphagia difficulty. The International Dysphagia Diet Standardization Initiative, IDDSI was introduced globally in 2015. There has been systematic review that has shown that thick liquid can decrease risk of aspiration while overly thick liquid can increase risk of residue after swallowing (21). In addition, concentrated and hard foods require high effort for processing and digestion, (21) have also shown that foods that are too hard or concentrated can cause a worse condition for someone who has difficulty swallowing.

IDDSI has been implemented in various countries across the globe like Australia, China and Mexico but there are still limitations to improve that the countries have implemented IDDSI successfully. The development of the IDDSI framework as an international coordination in labeling and describing the texture of food and beverage

concentrations has had a significant impact in the field of dietary management of texture modification and concentrated liquids with orderly arrangement (6,7).

According to the IDDSI website, there are 8 levels of food and drinks texture in the IDDSI framework . IDDSI flow test can be done with a 10ml syringe, it can be done by the flow rate of foods and drinks through the syringe. Food consistency can be tested using spoon tilt and fork test. Suitable food and drink consistency are the most important key of treatment for dysphagia patients. It is to avoid all the complications that can lead to more health complications. Systematic studies have found that the best evidence available for selecting the ideal food consistency to manage dysphagia comes from strict tolerance screening to a variety of foods as part of a comprehensive swallowing assessment (6).

METHODS

Study design and sample

This study was a qualitative study among food service dietitians using a purposive sampling technique. The participants from this study were Malaysians food service dietitians who work at Ministry of Health hospitals. They have at least 3 months experience in working as a food service dietitian. The foodservice dietitians have heard and read about IDDSI before participating in this research. Purposive sampling was used to recruit the participants from stated approval criteria. This study was approved by the Research Ethics Committees of Universiti Kebangsaan Malaysia (approval code:UKM PPI/111/8/JEP-2022-261).

Focus Group Discussions

The FGDs were conducted in Bahasa Malaysia in June 2022 on the Zoom platform. All participants answered the questions from the moderator and had given their written informed consent prior to participating in FGD. There 3 FGDs sessions that were conducted by two moderators, monitored by the main researcher and observed by experienced qualitative researchers. The sessions were recorded using audio and video by the moderators using Zoom Video Recorder. Each moderator takes turns taking notes and watching the participants' non-verbal behaviors. These notes are used as a backup if anything happens to the video recording.

Subjects who have read or heard about the International Dysphagia Diet Standardisation Initiative(IDDSI) from the sociodemographic form have participated in the focus group

discussion. The subject of the selected study was contacted via email and Whatsapp regarding the date, time and platform to be used for focus group discussion. Focus group discussions conducted using the Zoom platform have been recorded for audio as well as video. Video and audio are used only for the purpose of analyzing data and being safely removed after the data analysis process is complete. During the focus group discussion, the study subjects did not use their real names but only used the first letter of their name to maintain confidentiality. Based on the focus group interview, information on the Use of Guidelines for current texture modification diets, IDDSI understanding level information, challenge information, motivation, ideas and acceptance to implement a texture modification diet using IDDSI reference are possible. The number of study subjects in the focus group interview is preferable to 12 because the data has reached saturation. There are three groups of four study subjects per group.

During the FGDs session, the moderators started the session with an explanation of the purpose of this study, rules and regulations. Four main topics were discussed in FGDs namely (i) understanding of IDDSI, (ii) challenges in IDDSI implementation and suggested strategies, (iii) motivation stage in implementing IDDSI and (iv) acceptance of implementing IDDSI in Malaysia hospitals. All the participants were encouraged to share their ideas and opinions regarding these questions by stating that there was no wrong or right answer. The recruitment stopped when the data achieved data saturation.

Table 1. Focus Group Discussion Questions

Topic	Questions
Comprehension of IDDSI	<ol style="list-style-type: none"> 1. What do you understand about IDDSI? 2. How many levels of IDDSI framework? 3. Do you know the size description on every level of IDDSI? 4. What is the testing method used in IDDSI?
Challenges	<ol style="list-style-type: none"> 1. What are the challenges that may arise in implementing IDDSI?

Suggested strategies	1. Can you suggest strategies to overcome the challenges to implement IDDSI?
Motivation stage	1. What is your motivation level and why do you say so?
Acceptance	1. How well can staff accept IDDSI as a new guideline?

Data coding and analysis

Subjects who have read or heard about the International Dysphagia Diet Standardization Initiative(IDDSI) from the sociodemographic form have participated in the focus group discussion. The subject of the selected study was contacted via email and Whatsapp regarding the date, time and platform to be used for focus group discussion. Focus group discussions conducted using the Zoom platform have been recorded for audio as well as video. Video and audio are used only for the purpose of analyzing data and have been safely removed after the analysis process has ended. After finishing all the FGDs sessions, the collected data has been verbatim transcribed using Atlas.ti. The data has been encoded, classified by category and subsequently the theme is given according to the objective (level of understanding, challenge, strategy, motivation level and acceptance of IDDSI).

RESULTS AND DISCUSSION

Twelve female participants took part in three FGDs. Each group contained four participants and ranged about 1 hour in duration. Table 2 shows the participants' Socio Demographic Profile.

Table 2. Participants' Socio Demographic Profile.

Variable	n	(%)
Age		
30-35 years	4	33.3
36-40 years	6	50
41-46 year	2	16.7

Race		
Malay	9	75
Chinese	2	16.7
Native	1	8.3
Experience		
3-12 months	2	16.7
1-3 years	1	8.3
3-6 years	2	16.7
>6 years	7	58.3
Education		
Degree	10	83
Master	2	17
Position		
U 41	5	41.7
U 44	5	41.7
U 48	2	16.7
Source of information		
Webinar	7	31.8
Official Website	6	27.3
Colleagues	6	27.3
Journal	2	9.1
Others	1	4.5

4.1 Comprehension of IDDSI

Table 3. Themes and quotes for comprehension of IDDSI.

Themes	Code	Quotes
Standard according to the food texture.	Has texture modification with level for foods and drinks.	"I think there are categories for food and drinks. From what I remember, it has the pyramid and is divided into food and drinks and it has levels,

		<p>regular on the above level, i think so.” - (FGD1,NS,3-6Years)</p> <p>“ Everyone knows the level so everyone knows the standard of the diet on each level.” (FGD3, NZ,>6 Years)</p>
Has 7 levels.	0 to 7	<p>“It has levels of 0 to 7. From liquid until it thickens at level 7.” -(FGD2,NY,>6 Years)</p> <p>“7” -(FGD3,CM,>6 Years)</p> <p>“7” -(FGD3,JZ, 3-12 Months)</p>
Fork and syringe test.	<p>Syringe (drinks), spoon tilt and fork test (foods)</p> <p>Details are not clear</p>	<p>“Thin to thick liquid using syringe test while food using spoon tilt and fork test. Testing the rate of the flow dropping.” - (FGD2,WK, 3-12 Months)</p> <p>“Fork and syringe” - (FGD3,NZ, >6 Years)</p> <p>“I’m not sure.” - (FGD3,CM,>6 Years)</p> <p>“I don’t know the testing method.” - (FGD3,JZ,3-12 Months)</p>

As for comprehension of IDDSI, few quotes from participants have been stated. Participants have been asked if they know about IDDSI, IDDSI framework and what IDDSI is in general. Most of the participants have heard and read about IDDSI generally but overall, they have yet to understand IDDSI in detail and its purposes. Most of the participants knew that

there are 7 levels of IDDSI framework and it is divided into foods and drinks consistency. Some of the participants also mentioned that they are aware of the tests that are involved to determine its consistency.

4.2 Challenges in Implementing IDDSI

Table 5. Themes and quotes for challenges in implementing IDDSI.

Themes	Code	Quotes
Lack of time, manpower and equipment.	Lack of time, manpower, equipment.	"I think the main challenge is time. Time from the staff and equipment are insufficient like conveyor belts, we manually use tables and if we want to add on a few diets from IDDSI, we may need to increase the workload of our staff..." - (FGD1, SR, 3-6 Years)
Low understanding and awareness of dietitian, speech therapist and chef.	Understanding and knowledge of every member.	"Most importantly, the staffs' understanding, knowledge needs to be updated." - (FGD1,N,3-6 Years) "Monitoring, understanding and training of our staff, whether they can follow them or not. When they change, the rate of acceptance is difficult. In terms of equipment, too." - (FGD3,HH,>6 Years)
Lack of training and guidance to chef, dietitian and speech therapist.	Training for dietitian, speech language therapist and chef.	"We need some experts to guide and someone that really understands about IDDSI." - (FGD2,NY, >6 Years) "Needs to set up new things, starting from PEPM. Training for those who want to indent IDDSI consistency." - (FGD3, JZ, 3-12 Months)

All institutions are not using IDDSI as reference.	Not using IDDSI as a guideline but using a hospital diet manual.	<p>“We do not have proper guidelines like IDDSI and we are just following HDM. That’s it.” - (FGD1, NS, 3-6 Years)</p> <p>“Not yet but in that direction.” - (FGD2,NY, >6 Years)</p>
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As IDDSI is a huge project to be implemented, there are many challenges that have been stated by participants which include lack of time, manpower, equipment, training, knowledge and awareness. Knowledge and understanding of dietitian, speech therapist and chef about IDDSI are the most important things and need to be updated.

4.3 Strategies in Implementing IDDSI

Table 6. Themes and quotes of strategies in implementing IDDSI.

Themes	Code	Quotes
Step by step implementation.	Not necessary to implement now. Implement step by step.	“It is hard to say as demand is different in every hospital, our settings do not have much demand so it is too fast to fully implement it immediately... so it is not necessary to fully implement IDDSI.” - (FGD1, SR, 3-6 Years)
Increase awareness and knowledge about IDDSI on every staff.	Promotion and awareness of IDDSI.	<p>“Maybe on promotion of IDDSI, maybe we can increase awareness of the higher ups about the importance of IDDSI so they can include IDDSI in our guidelines.” - (FGD1,SR,3-6 Years)</p> <p>“Awareness of the higher ups. It is important so that the higher ups can follow. Financial support is important so applications and implementation will be easier.” - (FGD3,HH,>6 Years)</p>

Training that involves everyone and not only dietitians.	Training and course must involve everyone and not just dietitians.	“Not only train dietitians...in depth training are needed for sco and chef so they can understand the need. Training on every level is needed too and not just dietitian so it can enhance better end products to achieve what we want. Level of training needs to be comprehensive because tasks are different on every level.” - (FGD2,E, >6 Years)
Other comments.	Following orders from higher ups. Can simplify IDDSI as it is too specific for the chef to understand.	“Actually in MOH, it is important from the higher ups, if there is an order, then we need to follow. There is no excuse when there is an order. We can simplify IDDSI as IDDSI is too detailed in information for the chef to understand so we can simplify to our own version.” - (FGD1, SR, 3-6 Years)

There are some strategies suggested by participants to overcome the challenges that are also stated by them. One of them is participants suggested to implement IDDSI step by step and do not fully implement IDDSI at once as some hospitals have less demand for diet modified texture. Other strategies suggested are promoting IDDSI to the higher ups to increase their awareness and knowledge about IDDSI so it can be implemented efficiently with the order from higher ups. Training of those who are involved which are dietitians, speech therapist and chef are needed as implementation will be done by those staff. Finally, some of the participants also stated if the higher ups order them to implement IDDSI, then it is their duty to do the task without any complaint. Thus, even if there are any difficulties, when higher ups have said the word, it must be done.

4.4 Motivation Level

Table 7. Themes and quotes for motivation level in implementing IDDSI.

Themes	Code	Quotes
The motivation stage is neutral.	Scale 5 -10 (Neutral)	“ For me I give 5 only because there is no demand now. If there is demand, we can try to make it.” - (FGD1, N,3-6 Years)

		<p>“I will also give 5 because my institution does not have demands on texture modified food. There are still some orders but not too many. We can do step by step but there is challenge in every hospital” - (FGD1, NS, 3-6 Years)</p> <p>“ I give 5 because there are a lot of factor that we need to consider” - (FGD3, CM,>6 Years)</p> <p>“ I give 5 because from the equipments, help from the leader and we need to learn the right technique” - (FGD3, NZ, >6 Years)</p>
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Lastly, motivation of participants has also been asked and it has been concluded as neutral. Majority of the participants have ranges 5 out of 10 which indicate neutral. Some of the reasons are because demand of diet modified texture needed in the institution are low, thus, need of IDDSI implementation are not necessary and another participants stated that there are a lot of factors that need to be reconsider before IDDSI can be implement as it is a new guideline to be introduce to the country.

4.5 Acceptance of IDDSI

Table 4. Themes and quotes for acceptance of IDDSI.

Themes	Code	Quotes
Easy.	Easy as we can monitor food prepared so texture can be the same everyday.	<p>“ It is easy because we can monitor the prepared food so there we can avoid inconsistent of texture modified food everyday” - (FGD2,AM, >6 Years)</p> <p>“ IDDSI is good, the reference can be standardized to use in Malaysia hospitals” - (FGD3,NZ, >6 Years)</p>
Not easy at the start.	Difficult in the beginning.	<p>“At the initial stage, it is not easy as IDDSI has many levels and needs proper monitoring. It can be done if all staff get proper training” - (FGD2,NY, >6 Years)</p>

	<p>The time taken for staff to attend the practical should be considered as all staff are very busy.</p>	<p>“Starting is hard, especially for us.” - (FGD2, WK, 3-12 Months)</p> <p>“Not easy as we are still new towards IDDSI” - (FGD3, CM, >6 Years)</p> <p>“ The training is very important for catering officers but they are already busy in the current situation. In my hospital, there is only one speech therapist” - (FGD1, N, 3-6 Years)</p>
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Most of the participants have stated that they accepted IDDSI to be implemented in hospitals in Malaysia. IDDSI can be implemented as it can make dietitians and chefs work easier. Food modified textures that are prepared using IDDSI guidelines can be monitored by dietitians. This can be a new standard of food modified texture prepared by the institutions. However, participants have said that it will not be easy to implement IDDSI in the beginning as it is a huge project and every institution has different settings and conditions. Training and knowledge are also some of the factors that have affected the acceptance of participants toward IDDSI implementation.

DISCUSSION

This study used a qualitative method of FGD to explore the understanding and acceptance of IDDSI among food service dietitians. Since there is no study regarding IDDSI in Malaysia yet, this study is to cater the perspective of a food service dietitian of IDDSI implementation. In addition, this study will give a new idea to improve food service catering in Malaysia hospitals. Based on the research paper found, there is not much study regarding implementation of IDDSI in Malaysia and overseas. Most of the papers found are discussing the existence and terminology of IDDSI.

Understanding of IDDSI

There are staff kitchen, caregiver and chef who know and acknowledge about IDDSI but their understanding towards IDDSI is low in New Zealand. It is stated that more than half staff recognized IDDSI but indicated receiving an unsatisfactory learning source (Xiaojing et al. 2021). In order to enable implementation of the IDDSI framework, staff education should be provided to nursing, therapy and food service staff (Peter et al. 2017). By comparing this study, we found out that the majority of participants generally acknowledge IDDSI but not in detail such as the contents, testing methods and size description for each level. The participants generally can explain the purpose and levels of food and drink in IDDSI. There are less than half participants who can explain about the IDDSI framework but not in detail.

Challenges of Implementation

The past studies reported staff as a common barrier and introduction of the standards is necessary to help staff to understand (Xiaojing et al. 2021). In our study, we found out that understanding and awareness from dietitians, speech therapists and chefs are low as the result of being unable to explain the IDDSI framework in detail. Half of the participants stated that it is not easy for staff to accept and adapt towards IDDSI implementation since they don't have an idea about IDDSI. According to them, lack of practical and guidance towards chefs, dietitians and speech therapists is one of the barriers for implementation of IDDSI. To implement IDDSI, we need at least a person who has trained TMD using IDDSI to guide all the staff in the kitchen. Training, kitchen space, recipes and commercial TMD are the resources available for IDDSI implementation that are associated with effectiveness (Hickey et al. 2019).

Strategies of implementation

To enhance the communication and staff education, one workshop provided training to nursing and ward staff and focused on thickening liquids to meet IDDSI standards(Peter et al. 2017). The strategy mentioned to tackle the barriers of IDDSI implementation is the training should not just be focused on dietitians only but with all staff involved such as chef, catering officer and speech pathologist. The implementation team needs more information than just a working knowledge of the IDDSI and the new system for classifying foods and liquids. Training is required for everyone who oversees a patient's food(Laina et al. 2019). This is to educate them on the importance of IDDSI. The knowledge of staff such as chefs,

catering officers and health professionals need to be improved in order to implement IDDSI (Peter et al. 2017). One of the participants believes that the role of the organization plays an important part in implementing IDDSI by providing support for better food service management in hospitals. The Kempen Pilot has full support both from hospital and corporate groups which it belongs to (Peter et al. 2017). As a result, The Kempen Pilot has demonstrated a successful implementation of the IDDSI framework.

Motivation level for implementation

Our participants showed a neutral motivation level as they rate five out of ten as current motivation in implementing IDDSI. In order to move forward with new guidelines, staff motivation for change was a significant influencer (Xiaoqing et al. 2021). The participants stated that their motivation levels are neutral because they are still new in learning IDDSI and unfamiliar with the guideline. According to Cabana et. al's review, lack of awareness and familiarities were significant barriers to clinical guidelines.

Acceptance of IDDSI

In this study, the participants have separated into two opinions regarding IDDSI implementation which are easy and not easy. Half of the participants stated that it is not easy to implement IDDSI in Malaysia hospitals since the staff involved are already busy with their work. They believe that it would be a burden for them to learn something new. Meanwhile in New Zealand, the head of department, catering officer and caregiver want to attend a course practical using IDDSI (Xiaoqing et al. 2021). Half of the participants stated it will be easy for them if IDDSI will be implemented in Malaysian hospitals. By implementing IDDSI, it is easy to monitor each texture of food provided in a day.

This study is to get an understanding and acceptance with its factor in IDDSI implementation. However, there are several limitations in this study. Firstly, the study focuses on food service dietitian only and does not include any other staff involved in the food preparation. Therefore, the findings of this study do not reflect any other staff involved in food preparation such as chef, catering officer and speech therapist. This study only involves Ministry of Health hospitals which are government hospitals. Further studies should include private hospitals as well to see the difference of their perspective. In addition, a webinar or workshop introduction to IDDSI should be conducted in future to all the hospital staff. By doing this, it can improve the staff education and give awareness regarding IDDSI.

CONCLUSION

The food service dietitian was reported to have a good general understanding of IDDSI as they can give a brief explanation of IDDSI but not in detail. The barriers of implementing IDDSI were influenced by understanding, awareness, lack of practical and guidance. Training should be provided to all the staff such as dietitians, catering officers, chefs and speech therapists to spread good information and practice among them. The motivation levels of participants are neutral since the depth understanding of IDDSI is still low. As a result, some of the participants said it is easy to implement IDDSI while some of them vice versa.

Abbreviations

IDDSI: International Dysphagia Diet Standardization Initiative, TMD: Texture modified diet,

DECLARATION

Funding

Not Applicable

Availability of data and materials

The datasets used and/or analyzed during the present study are available from the corresponding author on reasonable request.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be constructed as a potential conflict of interest.

ACKNOWLEDGEMENT

The authors would like to thank the food service dietitian in this study for making the time to attend focus group discussion and university for cooperating with researchers to enable this study to take place.

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