

The Implementation of IDDSI Framework in Irish Residential Healthcare Settings: A Survey

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ABSTRACT

Background

The International Dysphagia Diet Standardization Initiative (IDDSI) was found to standardize the terminology of diet modification for people living with dysphagia. Diet modification plays a vital role in managing dysphagia. It is a safe way to facilitate and maintain nutritional needs orally for people with swallowing disorders. To date, studies investigating the feasibility of IDDSI utilization in a residential healthcare setting are lacking. In this study, IDDSI implementation is overviewed in Irish residential healthcare settings. Also, the barriers and facilitators for its implementation are determined from the perspective of a whole country.

Aims

This study centers on 1) identifying positive and negative factors that contribute or do not contribute to IDDSI implementation, 2) evaluating how widely IDDSI is implemented in Irish residential healthcare settings, and 3) determining factors involved in its implementation.

Methods & Procedures

A cross-sectional, descriptive study using an online questionnaire, disseminated via Qualtrics, was employed. The participants included healthcare workers interested in IDDSI implementation and working in hospitals, hospices, and nursing homes. Data collection took place between March and April 2021.

Results

Thirteen SLTs responded to the survey. Most of the findings were from hospitals and community settings. The findings showed that lack of time, training, teamwork, and reduced awareness impeded IDDSI implementation. The most common responses of the implementation facilitators were staff training using online tools, teamwork with MDT members, and using IDDSI resources and posters. Participants confirmed that the IDDSI facilitated communication between professionals, and it is invaluable for patients overall.

Conclusion

This study contributes to a better understanding of IDDSI implementation. Most responses emphasized similar points, which indicates the importance of IDDSI implementation in healthcare settings for dysphagia management. These results are valuable for clinical practice and future research.



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Declaration

I declare that this thesis has not been submitted as an exercise for a degree at this or any other university. The work described in this thesis is my own work.

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A handwritten signature in dark ink, reading "Mona Allithey". The signature is fluid and cursive, with a large loop at the end of the last name.

Mona Allithey

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List of Abbreviations

IDDSI	International Dysphagia Diet Standardization Initiative
QOL	Quality of Life
TMF	Texture Modified Food
IASLT	Irish Association of Speech & Language Therapists
INDI	Irish Nutrition and Dietetic Institute
SLT	Speech and Language Therapists
MDT	Multi-disciplinary Team
HSE	Health Services eLearning

1. Introduction

Dysphagia management is crucial for handling people living with dysphagia and often involves diet modification to ensure safe food consumption (Lam et al., 2017). The International Dysphagia Diet Standardization Initiative (IDDSI) is one of the latest applications used for diet modification of dysphagia management. The goal of the framework is to offer standardized terminology and definitions to describe texture-modified foods and drink thicknesses used for dysphagic individuals of different ages in all healthcare settings and for all cultures (Cichero et al., 2017). Since this area is significant for dysphagic patients, and the actual use of the IDDSI is relatively new to Irish clinical practice, further studies are needed to identify the feasibility of implementing IDDSI to improve the implementation process and avoid difficulties.

Hence, this study focuses on gathering information about IDDSI implementation in residential healthcare settings in Ireland, including hospitals, hospices, and nursing homes. It identifies people involved in the implementation process, people who are planning to implement the IDDSI, and determines why some healthcare settings have not implemented the IDDSI. It also answers the extent to which the IDDSI is implemented in Irish residential healthcare settings and the barriers and facilitators to its implementation.

The data were collected using an online survey distributed to individuals who worked in Irish residential healthcare settings. The proposed outcomes of this study provide useful information for healthcare settings in general and may be used to develop IDDSI implementation successfully, avoiding potential difficulties in its future implementation. It is important to know what does and does not work successfully in the implementation and to have a general idea from the perspective of a whole country. Consequently, this study may help other healthcare settings or other countries encounter fewer barriers and obstacles during implementation.

This dissertation comprises five chapters: introduction, literature review, methods, results, and discussion. The introduction presents the general topic of the thesis and background. The next chapter will review the existing literature related to this topic. The methodology chapter explains the methodological approach used to collect the data. The fourth chapter will report the main findings of the research. The final chapter summarizes the key findings, states the limitations, discusses the implications, and illustrates a conclusion based on the research findings.

2. Literature Review Chapter

2.1. Swallowing Dysfunction

Normal swallowing is critical for humans to allow proper nutrition and hydration, as it is a process that facilitates fluid and nutrient intake from the oral cavity to the stomach (Ortega et al., 2014). The physiological process of swallowing is not only a simple transfer of the bolus from the oral cavity to the stomach but is also a combination of both voluntary and involuntary phases that are divided into four stages: (1) preparatory phase, (2) oral phase, (3) pharyngeal phase, and (4) esophageal phase (Dodds et al., 1990). This mechanism should occur normally and without significant effort for healthy individuals, mediated by the complex neuromuscular system that executes the swallowing process (Dodds et al., 1990).

Any disruption in the swallowing phases is defined as dysphagia and is associated with anatomical or physiological deficits in the oral, pharyngeal, or esophageal cavity (Crary & Groher, 2003). According to Sura et al. (2012), dysphagia may alter or reduce nutritional status in the body. Consequently, it is recommended that some patients with dysphagia break down their food into soft and small pieces to make it easier to swallow (Cichero et al., 2013).

Bolus modification is often considered first for dysphagia management, followed by motor behavioral techniques (e.g., shaker exercise, head-lifting exercises), sensory stimulation (e.g., thermal-tactile stimulation), postural adjustment (e.g., chin-down posture), and swallowing maneuvers (e.g., Mendelsohn maneuver) (Ekberg, 2012). However, some patients require only compensatory strategies during swallowing to maintain safety, and others require more intensive swallowing rehabilitation, according to Sura et al. (2012). Regarding quality of life (QOL), Garcia and Chambers (2010) reported that dysphagia can affect a patient's QOL and emotional well-being. Roy et al. (2007) conducted a cross-sectional survey on 177 elderly patients with dysphagia and found that an increased sense of isolation and decreased self-esteem are related to dysphagia.

2.2. Texture-Modified Food (TMF) and Thickened Liquid

A growing body of literature has recognized the importance of TMF and thickened liquid in managing dysphagia. According to Steele et al. (2015), diet modification or liquid thickness is often the cornerstone of dysphagia management. It is a safe way to facilitate and maintain nutritional needs orally for people with swallowing disorders (Rothenberg et al., 2007). Compared to regular textured food, TMF reduces the need to chew or orally formulate the bolus, thereby increasing mealtime safety and efficiency (Penman & Thomson, 1998; Steele et al.,

2015). Moreover, TMF can increase weight, thereby improving nutritional status (Germain et al., 2006).

Although some modified liquids are available for purchase in stores, only one-third of facilities use these products exclusively; others use thickening products mixed with the liquid to achieve a target level of consistency (Garcia et al., 2005). Every liquid viscosity or bolus consistency acts differently in the mouth and requires a specific time and effort to be safely swallowed (Dodds et al., 1990). According to Wendin et al. (2010), the effectiveness of dysphagia management often depends on the recommended viscosity. Further, thickened liquid enhances safe swallowing by slowing the swallowing process (Newman et al., 2016; Neils et al., 1994).

Hence, it reduces premature spillage to the oropharynx, thereby reducing the risk of penetration and aspiration (Clavé et al., 2006; Newman et al., 2016; Steele et al., 2015). Also, Rofes et al. (2012) indicated that the prevalence of penetration and aspiration was reduced in 98.9% of patients with dysphagia by increasing liquid viscosity. This is relevant to individuals with a certain kind of dysphagia, such as reduced tongue base seal or poor oropharyngeal sensory innervation. Thus, thickened liquid may be prescribed alongside a texture-modified diet for some patients with dysphagia if assessment shows that the associated dangers are too clear to continue with a standard diet and thin liquid (Payne et al., 2012).

Using a thickening agent alters the flavor and texture characteristics of the base liquid, which may make the thickened liquid less desirable to drink (Matta et al., 2006). It may also contribute to added complications, such as the risk of dehydration from consuming small amounts of fluid (Whelan, 2001). Moreover, food is a pleasurable experience of chewing and manipulating a bolus in the mouth, and this experience is reduced using TMF; therefore, TMF can adversely affect the patient's QOL (Hall & Wendin, 2008; Mioche et al., 2004). Psychological impact is another concern because some patients feel embarrassed about consuming TMF, which may result in isolation (Keller et al., 2012).

2.3. IDDSI Framework

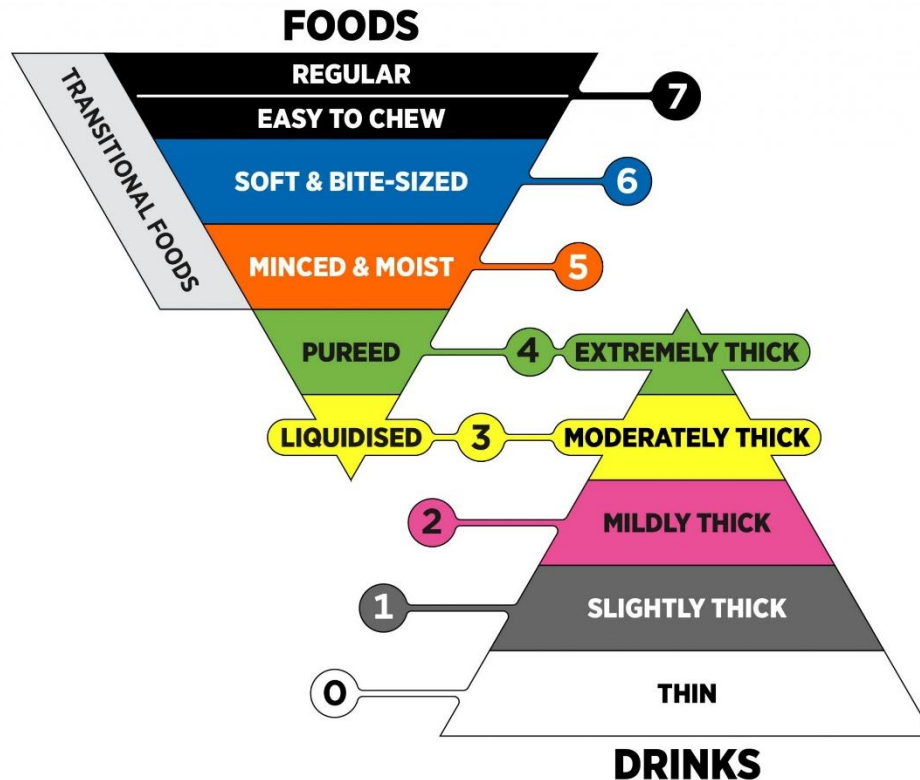
The IDDSI was founded in 2012 by an international multidisciplinary group of volunteers who formalized the IDDSI framework in 2016. The goal of the framework is to offer standardized terminology and definitions to describe TMFs and drink thicknesses used for dysphagic individuals of different ages in all healthcare settings and for all cultures (Cichero et al., 2017). In fact, it is available in 19 languages to make it applicable internationally. The major advantages of implementing the IDDSI framework are to provide benefits, including, among other things, maintaining patient safety, improved communication within and between clinicians, healthcare providers, and patients, increased visibility of professional interventions, and higher opportunities to evaluate management results (Atherton et al., 2007; Jukes et al., 2012).

The IDDSI framework describes and categorizes foods and drinks into two pyramids according to their texture or flow characteristics (Fig 2.1). The framework includes a continuum of eight levels (0–7) of terminologies; drinks are measured from levels 0–4, while solids are measured from levels 3–7 (www.iddsi.org). Each level is identified by name, color, and number. However, there is an overlap at levels 3 and 4 because they share the same characteristics between food and drinks. In clinical practice, clinicians (typically a speech and language therapist) handle diet recommendations based on their clinical assessment (Hanson et al., 2019).

The IDDSI framework provides low-cost testing methods to facilitate compliance with food and liquid consistency descriptions within the framework continuum (Rule et al., 2020). This includes several basic tests: the IDDSI Flow, Fork Drip, Spoon Tilt, Fork/Spoon pressure, Chopstick, and Finger (Rule et al., 2020). Nevertheless, it has been argued that no studies have yet shown that terminologies or levels enhance dysphagia management, whether in terms of nutritional status, QOL, or the risk of aspiration pneumonia (Côté et al., 2020).

The IDDSI Framework

Providing a common terminology for describing food textures and drink thicknesses to improve safety for individuals with swallowing difficulties.



© The International Dysphagia Diet Standardisation Initiative 2019 @ <https://iddsi.org/framework/>
 Licensed under the Creative Commons Attribution Sharealike 4.0 License <https://creativecommons.org/licenses/by-sa/4.0/legalcode>.
 Derivative works extending beyond language translation are NOT PERMITTED.

Fig 2.1: The International Dysphagia Diet Standardization Initiative Framework 2021
 @<https://www.iddsi.org/framework/>

2.4. Role of Standardization

TMF and thickened liquids have broad variations in how they are defined (Penman & Thomson, 1998), emphasizing the need for internationally standardized terminologies and definitions that would ensure consistent and standardized labels (Rule et al., 2020). Confusion regarding terminologies and labels of TMF and thickened liquids has been a concern in some countries, as it is one of the contributing factors to death in Australian nursing homes (Atherton et al., 2007). Also, consuming incorrect TMF consistencies or thickened liquids may put those with dysphagia at risk of malnutrition, dehydration, choking, or airway infections due to penetration or aspiration (Icht et al., 2018). Ekberg (2012, p. 665) specified that “to determine the effectiveness of

modifying food and liquids in patients with oropharyngeal dysphagia and compare study outcomes, a uniform definition for the rheologic properties of foods and liquids should be used.”

In 2013, a review of all existing dysphagia terminologies was conducted by Cichero et al. (2017), which provided data from over 2,050 completed surveys representing over 33 countries. They argued that among dysphagia patients, their caregivers, healthcare professionals, food service providers, researchers, industries, and organizations supporting patients with dysphagia, there were 3–4 levels of food texture commonly used, employing 54 different terminologies to describe them. There were more than three levels of liquid thickness used, employing 27 different terminologies.

A lack of standardized terminologies regarding food texture and drink thickness primarily impedes research in the dysphagia field (Cichero et al., 2017). Consequently, standardized labels and measurement values could enhance patient safety and improve studies into the therapeutic use of TMF and thickened liquid in dysphagia management (Cichero & Lam, 2014). The issue of terminology has received considerable critical attention globally, which would provide a single point of reference that allows patients, clinicians, researchers, and industry to communicate easier (Cichero & Lam, 2014).

It is necessary that professionals and caregivers nationally and internationally have the same knowledge and understanding of what consistencies of diet modification are safe for people with dysphagia (Pope, 2017). Therefore, any person of any culture or language should be able to recognize the diet modification type and texture to avoid confusion and inconsistencies from setting to setting and even internationally in dysphagia treatment (Pope, 2017).

2.5. Implementing New Services

Implementation refers to what a program comprises when delivered in a particular setting (Durlak & DuPre, 2008, p. 329). The effectiveness of implementation is often complicated and poorly examined (Grol & Grimshaw, 2003; Solberg, 2000). Therefore, the key role of implementing new services in healthcare settings is identifying the positive and negative factors that may affect the implementation process (Durlak & DuPre, 2008). Nevertheless, negative results can occur if the framework is not implemented adequately (Durlak & DuPre, 2008). Multi-professional collaboration is another important aspect when implementing standardized terminology to provide patients with a care continuum from the catering department to the bedside (Jukes et al., 2012; Lam et al., 2017).

Kavcic et al. (2020) stated that IDDSI framework implementation provides people with dysphagia with the right texture-modified diet recommended by an SLT after the swallowing assessment. A pilot site in Kempen, Germany, volunteered to conduct a quality assurance process to document IDDSI implementation (Lam et al., 2017). The study identified the following recommendations to

enable IDDSI framework implementation. First, education sessions were provided to staff members to enhance their knowledge. Second, the key point to successful implementation and holistic adoption is the collaboration and communication between healthcare providers and food services. Finally, a review of existing menu items every 6–12 months is required to ensure that they meet the IDDSI framework standards (Lam et al., 2017).

Overall, the IDDSI website provides implementation guides and free resources for different fields to facilitate and guide the process. For instance, a clinician and healthcare provider, food service and catering, industry sector, and cross-sector master guides help in coordination between them. Each guide comprises tasks to follow and tools to assist in successful implementation. To begin this process, awareness across facilities and individuals interested in implementation should be built. The next step is to prepare for the implementation by changing the protocols and materials that may need to be changed, adding to the staff training. The final stage is the transition and adoption of the IDDSI framework that is ready to use (IDDSI, n.d.).

2.6. Irish Context

The Irish Association of Speech and Language Therapists (IASLT) is a recognized professional association of speech and language therapists in Ireland. It provides up-to-date information and is useful to increase awareness of the available services ([IASLT, n.d.](#)). In 2009, the IASLT and the Irish Nutrition and Dietetic Institute (INDI) adopted the Australian guidelines and produced the consensus document Irish Consistency Descriptors for Modified Fluids and Food Consensus Document for their own use (Jukes et al., 2012). However, in 2019, several countries announced a formal move to the IDDSI framework, including Ireland, Australia, the United Kingdom, the United States, Canada, and New Zealand (Cichero et al., 2020).

The co-chairs of the IDDSI visited Ireland in April 2016 to present the representatives of IASLT and INDI in Dublin. The purpose of this visit was to discuss the adoption of the IDDSI framework in Ireland and to provide descriptors for texture-modified foods and thickened liquids. The meeting was successful, as the representatives of IASLT and INDI began to recommend the adoption of IDDSI and replace the existing Irish consistency descriptors with the IDDSI framework (IASLT & INDI, 2018). Moreover, according to the INDI website (INDI, n.d.), working groups for Health Services e-Learning and Development (HSE) who were interested in dysphagia management have been supporting the transition to the IDDSI framework starting from September 2019. HSeLanD is a learning platform that provides online training and learning resources about IDDSI implementation to enable people from Ireland to have the opportunity to implement the IDDSI framework in their settings (HSeLanD, n.d.).

2.7. Study Aims, Objectives, and Research Questions

The research question of this study is, “To what extent is IDDSI implemented in Irish residential healthcare settings, and what are the barriers and facilitators to its implementation?” This study’s aims are to overview the IDDSI implementation in hospitals, hospices, and nursing homes in Ireland, to identify positive and negative factors that contribute or do not contribute to IDDSI implementation, to evaluate how widely the IDDSI is implemented in Irish residential healthcare settings, and to determine factors involved in its implementation.

The research objectives that lead to achieving these aims are as follows:

- Identifying the barriers and facilitators of implementation by asking open-ended questions;
- Investigating what team members were involved in the IDDSI implementation by recruiting people who were involved in the implementation;
- Determining the barriers that hinder IDDSI from being implemented in some Irish residential healthcare settings;
- Exploring team members’ opinions regarding the plans for implementing the IDDSI;
- Profiling how many residential healthcare settings have implemented the IDDSI;
- Evaluating whether the IDDSI implementation has benefitted patients from the perspectives of those responsible for the implementation.

3. Methodology Chapter

3.1. Introduction

This chapter presents the research methodology used to achieve the research aims and objectives. It discusses the research philosophies, approaches, and procedures. It overviews the data collection and analysis, sampling strategies, and ethical considerations.

3.2. Research Philosophy

This is defined as a combination of beliefs and assumptions about the evolution of knowledge (Saunders et al., 2007). Crotty (1998) revealed various assumptions in every step of research, and these assumptions help the researcher understand the research questions, what method is more appropriate for the research, and how to successfully interpret the findings. Although five major philosophies are used to build a piece of research, this study uses a pragmatism paradigm to best answer the research question and investigate the problem (Creswell & Creswell, 2017).

Pragmatist research focuses on a particular problem and aims to provide solutions that can be conducted successfully in future practice (Saunders et al., 2019). Further, it is often associated with a mixed-method design because both qualitative and quantitative data are variables in the pragmatist paradigm to show a pluralist view of the research methodology (Saunders et al., 2019). This research focused on IDDSI framework implementation in Irish residential healthcare settings and used a mixed-method design. Therefore, this approach is appropriate to answer the research question and contribute to improving clinical practice.

The researcher's personal motivation for investigating the research question was developed to better understand how to implement IDDSI in her own country (Saudi Arabia). In 2019, IDDSI was implemented for the first time in the eastern region of Saudi Arabia at King Fahad Specialist Hospital (KFSH)—Dammam. According to Ghazi (2019), applying IDDSI in KFSH has been useful in increasing patient safety, improving quality of care, and reducing cost. Therefore, the researcher is eager to explore IDDSI to better understand how to apply it successfully in Saudi Arabia as a whole.

3.3. Research Methodology

Research methodology is defined as the general approach that the researcher assumes in conducting a research project (Leedy and Ormrod, 2001). This research used a descriptive

research approach, which is a basic method that describes the facts or situations of certain phenomena (Dulock, 1993). The objective of this research is to explore the implementation process of the IDDSI framework in Irish residential healthcare settings using descriptive design. This type of study is convenient for this research to properly answer “what” questions rather than why, when, and how (Saunders et al., 2019). For example, what are the barriers and facilitators to IDDSI implementation?

This research uses a cross-sectional approach, which captures a snapshot over time (Saunders et al., 2019). The cross-sectional survey is easy to conduct and is completed in a short time compared to other types of survey designs, which make it common in research projects (Omair, 2015). It requires a representative sample to generalize the findings to the population (Levin, 2006).

The COVID-19 pandemic helped the researcher decide on a survey instead of other methods, such as interviews or focus groups. The research purpose was to answer some questions qualitatively and quantitatively rather than synthesizing and summarizing literature, and since IDDSI is a relatively new approach, the literature about it remains insufficient. Thus, systematic or scoping reviews were not considered for this study. Further, experimental study is not appropriate for this research because the researcher wanted to observe current Irish practice rather than experiment with manipulating practice.

3.4. Research Design

The researcher anticipated that both quantitative and qualitative approaches would be needed for this study to gather both forms of data. A qualitative approach uses words instead of numbers to explore certain problems from participants’ viewpoints (Creswell & Creswell, 2017). There are several techniques to conduct qualitative data. This research used open-ended questions through a survey to gather participants’ responses. To analyze the qualitative data, the researcher collected words and generated themes, and then interpreted the data meaning (Creswell & Creswell, 2017). Conversely, a quantitative approach uses numerical data to provide statistical data and information that can be quantified to support the research evidence (Saunders et al., 2007). This research used close-ended questions to obtain quantitative data, and the researcher used statistical tests to analyze the numerical data.

Mixed method research is an integration of both qualitative and quantitative approaches in a single study to gain a deeper understanding of a particular problem or situation (Johnson et al., 2007). Intentionally combining both qualitative and quantitative data helps support the strengths of each (Creswell et al., 2011). Considering this, the researcher used a mixed-method design

within the survey that included open-ended and close-ended questions to answer the research questions and fulfil the research aims and objectives.

3.5. Research Strategy

The researcher collected the data through an online survey that was designed and produced using “Qualtrics” (www.qualtrics.com). This is an online platform that allows researchers to create a questionnaire and send it to participants to answer the questions conveniently (Buchanan & Hvizdak, 2009). Online surveys have significant strengths (Evans & Mathur, 2005). They are flexible tools that allow the researcher to invite the participants through different formats: email, website, or a link to the survey. Moreover, it requires minimal time to generate the survey and distribute it to yield a high response rate. Another strength is that it provides multiple types of questions which allow the researcher to collect several types of information (Evans & Mathur, 2005)—multiple choice for closed-ended questions and text entry for open-ended questions.

A cross-sectional survey was adopted to collect data at a particular time (Creswell & Creswell, 2017). This research tool was chosen because it enabled the researcher to collect information regarding the implementation process in numerous Irish residential healthcare settings from different participants anonymously. It allowed participants to feel comfortable expressing their opinions without showing their identity. Surveys are a way of communicating between the researcher and the participants, which allows the participants to answer both open-ended and closed-ended questions (Reja et al., 2003) to gather beneficial information about IDDSI implementation.

The questionnaire comprised 18 closed-ended and open-ended questions in total. The survey was distributed through a national e-mail list for SLT managers to capture hospitals (Appendix 1). Approximately 20 hospices in Ireland were selected, and 58 nursing homes were selected randomly. These nursing homes and hospices were contacted using their general contact email address (e.g., info@nursinghome.ie). It was impossible to know who may be responsible for implementing frameworks like IDDSI within each setting, so the administrator responsible for the general email account was asked to forward the request to the person they identified as responsible and would act as gatekeeper in this way. The email addresses were found online by the researcher and the research supervisor.

The email contained a hyperlink to the questionnaire, which included an introductory page that briefly explained the research project and why their participation was needed to motivate them to complete the survey (Kitchenham & Pfleeger, 2002). A reminder email was sent to promote a high response rate.

3.6. Participant Recruitment

While using an appropriate sampling strategy is essential to gain useful information for research, it must be relevant to the research questions to meet the research aims and objectives (Miles & Huberman, 1994). For both hospice and hospital settings, the sample used was non-probability sampling or non-random sampling. The email was sent to a gatekeeper to send it to a list of hospitals, while the email for hospices was sent to list of mails that were taken from official governmental websites that include all hospices in Ireland. Concerning the nursing home, a probability or random sampling technique was adopted because there are over 400 nursing homes in Ireland. Thus, the researcher obtained a list of their names and randomly selected 10% of nursing homes using a random selection generator to avoid biased selection. Random sampling is a common sampling strategy, and Teddlie and Yu (2007) stated that each sampling unit in a particular population is equiprobable for inclusion in the sample.

The target sample for this study was people who were involved in IDDSI implementation or in settings where it was not implemented, and those who would be responsible for its implementation. The researcher asked the gatekeepers to send the survey to a member of each team who was involved in the implementation. Regarding the healthcare settings that did not implement the IDDSI framework, the researcher emailed the gatekeeper in those settings and asked that a member of each team participate in the survey. The primary purpose of recruiting a member of each team is to avoid bias. For example, hospital settings could have many SLPs, while hospices might have only one or two, meaning that multiple responses from one setting could over-represent that setting in the results. Thus, the researcher adopted a purposive or judgmental sampling strategy. This is defined as the strategy in which a researcher nominates specific criteria in participants in certain settings or events to collect data that is unavailable in other choices (Maxwell, 2012).

3.7. Inclusion/Exclusion Criteria

Based on the research question, the inclusion criteria involved Irish residential healthcare settings, people who were involved in the IDDSI implementation (often clinicians and non-clinician staff members who contributed to dysphagia management), and people who had not implemented the IDDSI in their settings. It is useful to capture responses from people who have not applied the IDDSI to understand the factors that prevent them from implementing the IDDSI framework in their settings. This study excluded non-residential healthcare settings (e.g., primary care centers) because most residential healthcare settings serve meals to their patients; therefore, they have a higher chance of implementing IDDSI in their settings.

3.8. Validity and Reliability

“Reliability and validity are central to judgments about the quality of research in the natural sciences and quantitative research in the social sciences” (Saunders et al., 2019, p. 213). This study is a mixed method study. Hence, it helps compensate for the limitations of one method with the strengths of another method (Onwuegbuzie & Johnson, 2006). Nevertheless, a self-completion web survey design provides high-quality data, according to Reja et al. (2003).

3.8.1. Reliability

Reliability plays a significant role in the quality of any research. It is the extent to which the findings can be repeatable when data are measured by different people and across different conditions (Drost, 2011). Pilot phases are known to improve survey reliability (Malmqvist et al., 2019), but there was insufficient time to complete one for this study. However, the survey was iteratively improved through collaboration between the researcher and the research supervisor.

The researcher considered principles in writing research questions to generate highly reliable responses. These principles include using simple language and terminologies that would be understood by the participants, complete sentences to avoid misunderstanding, using approximately equal questions with positive and negative factors that impact IDDSI implementation, and avoiding bias questions (De Vaus & de Vaus, 2013; Dillman, 2011).

3.8.2. Validity

According to Drost (2011), the validity of research is defined as the measurement of what is intended to be measured. It is often suggested that a quantitative approach has a clear set of assessment criteria, so readers can judge the quality of such research relatively easily. In contrast, the qualitative approach has no set of criteria available (Alasuutari et al., 2008). This study considers several aspects of validity.

Content validity refers to a review of the survey content by individuals from the target population (Kitchenham & Pfleeger, 2002). However, due to time limitations, this approach did not completed. This study considered that the survey was distributed equally, and only one member of each team recruited from each residential healthcare setting participated in this research. According to Holden (2010), face validity entails the extent to which an item should relate to a particular construct, as it appears to the people answering the test. Face validity was considered because the questionnaire was about IDDSI implementation, which is related to the research

title. Including the introductory page at the beginning of the survey provided the participants with information about the research study.

Several threats may affect the validity of the study. These threats could occur during different phases of the research process, such as research design, data collection, analysis, and interpretation (Onwuegbuzie, 2000). Insufficient knowledge of the research impacts the validity and may result in contradictions in the logic (Ihantola & Kihn, 2011). Another threat to research validity includes researcher bias during sample selection and questions used in the survey (Onwuegbuzie, 2000).

3.9. Questionnaire: Content Structure and Design

The questionnaire comprised six sections that involved 18 questions in total (Table 3.1). It included four questions developed using display logic for people who had not implemented IDDSI and those who were planning to implement IDDSI in their settings. The four questions were not answered because all respondents had implemented the IDDSI in their settings. These questions should answer why the IDDSI was not implemented in their setting and how they were planning to implement it. The other 14 questions were designed only for people who applied the IDDSI in their settings. Thus, only 14 questions were answered by the participants.

Sections	Title	Purpose
Introductory page	Introduction	To briefly explain the survey purpose and participant's inclusion and exclusion criteria
1	Demographic information	To obtain participant's place of work and their profession
2	Service delivery	To determine if the participants have implemented IDDSI, planning to, or did not implement it in their settings
3	The implementation process	To identify when was IDDSI implemented in their settings and who was involved in IDDSI implementation
4	Negative factors	To outline the barriers and obstacles that they faced during the IDDSI implementation
5	Positive factors	To identify the facilitators that helped during the implementation and to understand if IDDSI was invaluable in the settings
6	Recommendations	To provide recommendations and advice to other settings that have not implemented the IDDSI to improve the implementation in the future

Table 3.1: Explanation of the questionnaire content structure

Most of the closed-ended questions were multiple-choice and one Likert type scale. “Other” option was given for most of the closed-ended questions to provide the participants with more options to state their opinions if it was not addressed in the given options. Display logic was used for some questions to show only relevant questions based on previous responses. A progress bar was added at the survey’s top to show the survey completion percentage for the participants, and it informed them about how much of the survey they had completed and how much left. Moreover, the survey included “Next” and “Previous” buttons in the survey’s bottom to allow the participants to go back if they would like to change their answers. The questionnaire is available in full in Appendix 3.

3.10. Data Analysis

To analyze and describe the findings, the researcher used descriptive statistics for closed-ended questions and planned to use inferential statistics to report associations. Saunders et al. (2019) stated that descriptive statistics allow the researcher to describe and compare numerical variables’ data calculated through both the central tendency and dispersion. This study measured a sample of the population through a survey. Hence, using inferential statistics enables the researcher to make generalizations to the population using the research sample. Since the sample size was relatively small, inferential statistics was disregarded. Non-parametric tests were considered for data analysis because of their usefulness regarding small sample size (Fagerland, 2012). However, Dwivedi et al. (2017) revealed that this kind of test does not always perform well, especially with a sample size that is too small.

Content and thematic analyses are required to interpret responses to open-ended questions. A thematic analysis is a flexible tool that allows the researcher to systematically identify, organize, and offer insight into patterns of themes across a dataset (Braun and Clarke, 2012). A content analysis “is a systematic coding and categorizing approach used for exploring large amounts of textual information unobtrusively to determine trends and patterns of words used” (Vaismoradi et al., 2013, p. 400). Both content and thematic analyses similarly describe and break the text into relatively small units or themes (Sparkes, 2005).

3.11. Ethical Considerations

Research ethics are a significant part of any research associated with humans (Robson & McCartan, 2016). The role of ethical consideration is crucial to “ensure respect for persons, beneficence, and justice through such issues as study design, appropriate risks and benefits, and

appropriate processes of consent and recruitment” (Buchanan & Hvizdak, 2009, p. 38). For this study, the researcher protected the participants’ data with confidentiality and privacy, including guarding against harm to establish research integrity (Israel & Hay, 2006). Ethical approval was obtained from the School of Linguistic, Speech and Communication Sciences, Trinity College Dublin (Appendix 4). From an ethical standpoint, the researcher considers the following aspects suggested by Brace (2013) and Saunders et al. (2019) in Table 3.2.

Ethical principles	The action used in the research
Confidentiality	One of the important parts of any research is that the data should be held confidentially and secured for research purposes only. Further, the survey did not require identifiable information to protect the participants’ identity.
Informed consent	The first page of the survey included informed consent to explain the key elements of the research project and why their participation is vital. However, it also explained the participants’ participation is completely voluntary, and they should not submit the survey if they are unwilling to participate.
Beneficence and Non-maleficence	Respondents may be harmed by some sensitive questions. Hence, the study questionnaires did not contained any harm or sensitive questions, as they were not required to answer the research question.
Justice	The researcher considers including one member of each team in the survey to ensure equality and avoid the risk of bias. Additionally, the participants from all residential healthcare settings were treated equally and had equal questions.
Data management	The data were protected and secured in the research device. Although the researcher and the supervisor discussed regarding data analysis, the information was deleted ultimately after the research project to maintain participant’s privacy.

Table 3.2: Ethical principles and actions to manage these

4. Results Chapter

4.1. Introduction

This section illustrates the findings of the survey. Descriptive analysis was used for the quantitative data, and content and thematic analyses were used for the qualitative data.

4.2. Responses to the Survey

The response rates were unknown because the researcher could not determine how many people received the survey and could not tell how many professionals were working in each setting. There were 21 people who opened the survey, but only 13 participants completed the survey. To meet the ethical guidelines, eligible responses were obtained from people who completed and submitted the survey. Thus, eight people were excluded from the survey, and 13 participants successfully submitted the survey.

4.3. Participants' Demographics

The study sample comprised 13 participants. All the participants were speech and language therapists ($n = 13$, 100%). They were in different residential healthcare settings. The respondents from hospital settings ($n = 5$, 38.46%) and other settings ($n = 5$, 38.46%) were approximately equal, followed by nursing homes ($n = 3$, 23.08%) (Fig 4.1). Respondents from other settings represented three people who worked in the community, one in adult intellectual disability residential services, and one participant who worked across many different settings. No responses were submitted by hospice settings.

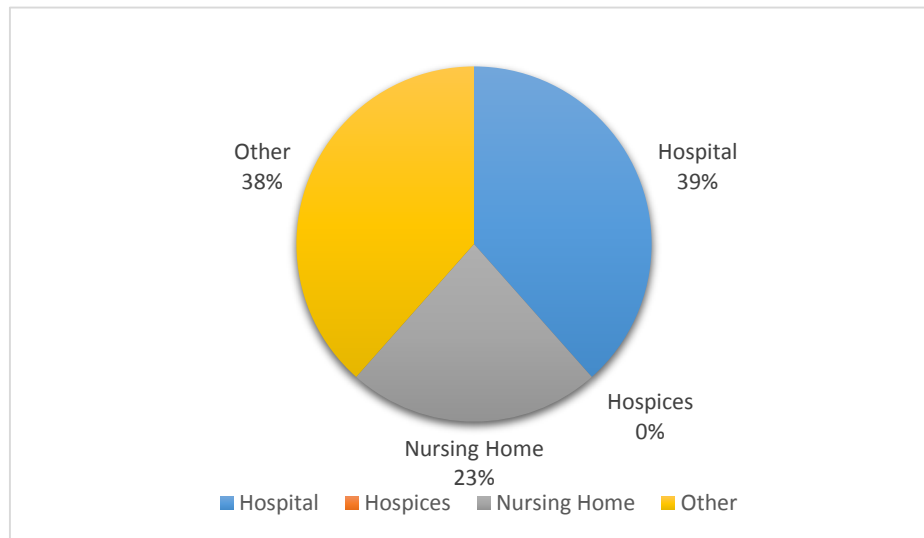


Fig 4.1: Percentages of Respondents' Work Settings

4.4. IDDSI Implementation

Participants were asked if they implemented the IDDSI in their settings. All respondents implemented the IDDSI in their settings (n = 13, 100%). Additionally, they were asked what other co-workers were involved in implementing the IDDSI in their setting besides themselves. The majority were the Catering and the Nursing (n = 8, 25.81%) with equal percentages, followed by the Dietician (n = 7, 22.58%), and the Speech and Language Therapist (n = 6, 19.35%). Responses to “other” co-workers were only (n = 2, 6.45%); one was a representative from Nutricia (a company that produces thickening products), and the other was from a nutritional company that added minimal support according to the participant (e.g., the company could direct chefs to a course they were rolling out) (Table 4.1).

Other co-workers who were involved in IDDSI implementation	%	n
Speech and language therapist	19.35%	6
Dietician	22.58%	7
Catering	25.81%	8
Nursing	25.81%	8

Occupational Therapist	0.00%	0
Other (please specify)	6.45%	2
Total	100%	31

Table 4.1: Percentages and frequencies of the most co-workers involved in the IDDSI implementation

The next question was to determine when the participants implemented the IDDSI in their setting. The majority (n = 12, 92.31%) implemented IDDSI in 2019, and one participant implemented IDDSI in 2020 (n = 1, 7.69%).

4.5. IDDSI Implementation Barriers and Obstacles

The participants were asked to describe any barriers they faced during implementation. The answers to this question were coded using content analysis. The following themes (Time, Training, Teamwork, and Awareness) were identified based on the participants' responses as barriers to implementing IDDSI. Most of the responses from participants referred to training as a barrier (n = 8/13, 61.5%), followed by teamwork and awareness with a similar percentage (n = 6/13, 46.1%), while 5/13 (38.5%) of the participants chose the time factor. For definitions of these themes, refer to Table 4.2.

Codes	Sub-categories	Example quotes
Time	Time demand Suitable time Taking a long time Lack of allocation of time Working time	"Organizing training for a multi disciplines and their working times was difficult"
Training	Liaise with external organizations Lack of training	"Arranging face-to-face training at suitable dates/ times"
Team work	Lack of motivation Difficulty organizing meetings Lack of engagement Confusion	"Bringing a large number of staff together across disciplines"

Awareness	Update terminology Inappropriate consistencies Lack of awareness	"Catering dept reports they cannot prepare diet to appropriate consistencies, e.g., cannot get meat/veg prep to 1.5 cm × 1.5 cm dimensions"
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Table 4.2: Content analysis of the barriers and obstacles of IDDSI implementation

There were repeated responses regarding catering staff. Lack of or difficulty training catering was addressed by two participants. Two respondents identified that it was difficult for catering to prepare the appropriate consistencies. Training during COVID-19 was considered a barrier to IDDSI implementation, and inaccessibility to computers/desktops for online training was identified as a barrier by one participant (Fig 4.2).

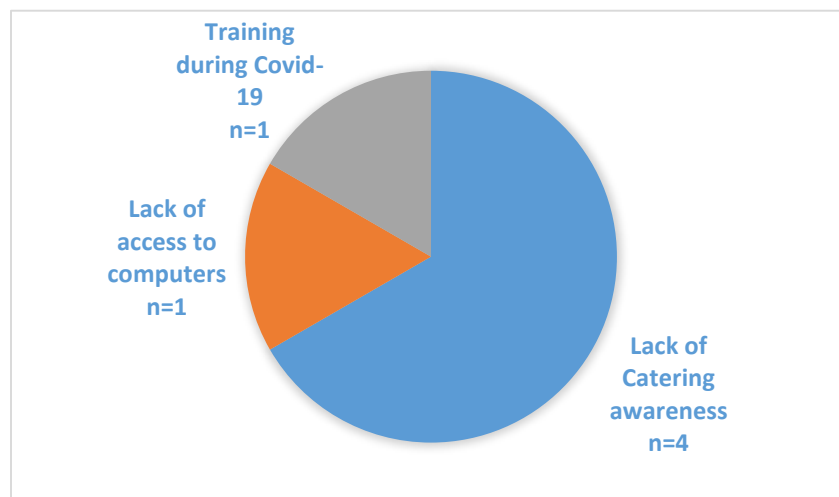


Fig 4.2: Additional barriers during IDDSI implementation

In the next question, the participants were invited to indicate how they had overcome the obstacles they faced during IDDSI implementation. Content analysis was used for this question (Table 4.3). All the responses were coded as time, team work, and training. Sub-categories were developed based on the participants' answers. Supporting examples from the respondents are in the table.

Codes	Sub-categories	Supporting Quotes
Time	Time frame	" Setting realistic time frame "
	Time table	"Set the timetable for the training"
Team work	Collaboration	"Close collaboration with Dietetics, Nursing and Catering representatives"
	Communication	"Regular communication and auditing as necessary"

Training	Meetings	"Inviting nursing and catering management to the meetings so that it would be a shared role"
	Committee	"Set up a nutrition and hydration committee"
	Liaison	"Regular liaison with other SLTs to discuss obstacles in various settings"
	Sessions	"Offered shorter "lightning" sessions"
	Auditing	"Competing IDDSI audits assisted the catering staff"
	Fun/interactive	"Make it fun/interactive"
	Online tools	"Direct staff to HSeLanD dysphagia training"
	IDDSI resources	"IDDSI posters on the wards"

Table 4.3: Content analysis of how the participants have overcome the obstacles during IDDSI implementation

4.6. IDDSI Implementation Facilitators

The participants were asked to identify the facilitators that helped them during the implementation process. Content analysis was also used for this question. The most common responses of the implementation facilitators were training staff using online tools by n = 7/13 (53.8%) of the participants, followed by teamwork with MDT by n = 5/13 (38.4%) responses, and using IDDSI resources and posters by n = 4/13 (30.7%) of the participants. For definitions of these themes, refer to Table 4.4.

Codes	Sub-categories	Example quotes
Training	IDDSI resources online Group Training HSeLanD module Liaise with colleagues Familiar with IDDSI website	"Use all the supports available, e.g., liaise with colleagues in other settings where IDDSI has already been implemented "
Posters	Update swallow signs Color card Conversion charts Display of levels	" Always carry a color card of the triangles with descriptors, place poster of same in each kitchen "
Team work	Meetings periodically Good communication Regular feedback Team support Have a representative Share the responsibility Resolve any issues as a team.	"Have a representative from each discipline involved (e.g., SLT, Dietician, Catering, Nursing etc.) and form an IDDSI implementation team or nutrition and hydration committee to delegate the workload,"

Table 4.4: Content analysis of the facilitators of IDDSI implementation

One participant reported that having a representative from each discipline involved was helpful to delegate the workload, share the responsibility, and resolve any issues as a team. Multiple responses were suggested to display IDDSI levels in the kitchen to familiarize staff with the new terminology.

4.7. Impact of the IDDSI Framework

In this question, the participants were asked if they think that IDDSI has been beneficial overall to patients/residents with dysphagia. Fig 4.3 shows that most of the respondents thought it was beneficial (n = 12, 92.31%), while one participant thought it was not beneficial to patients/residents with dysphagia (n = 1, 7.69%).

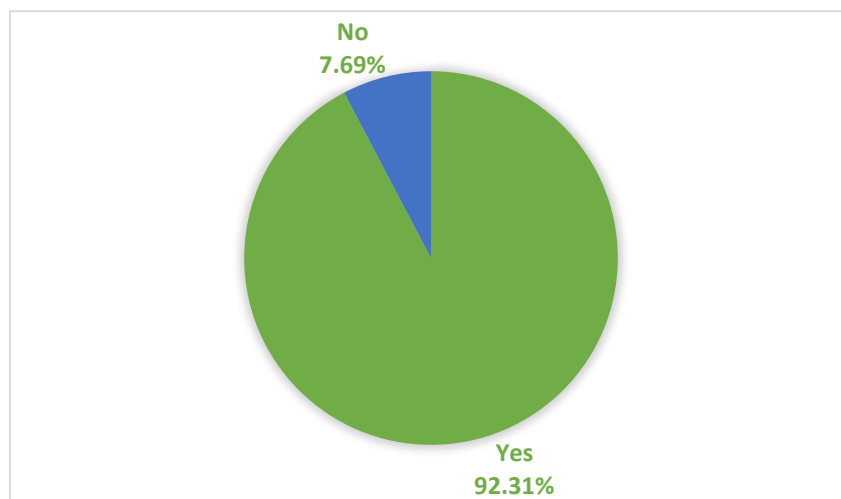


Fig 4.3: Responses to Question Asking Participants Whether IDDSI Implementation Was Beneficial to Patients/Residents

The next question asked if they agreed that the IDDSI makes communicating diet information with other healthcare professionals easier. Most of the participants somewhat agreed (n = 7, 53.85%), and (n = 5, 38.46%) strongly agreed, while (n = 1, 7.69%) somewhat disagreed that IDDSI made communication easier (Fig 4.4).

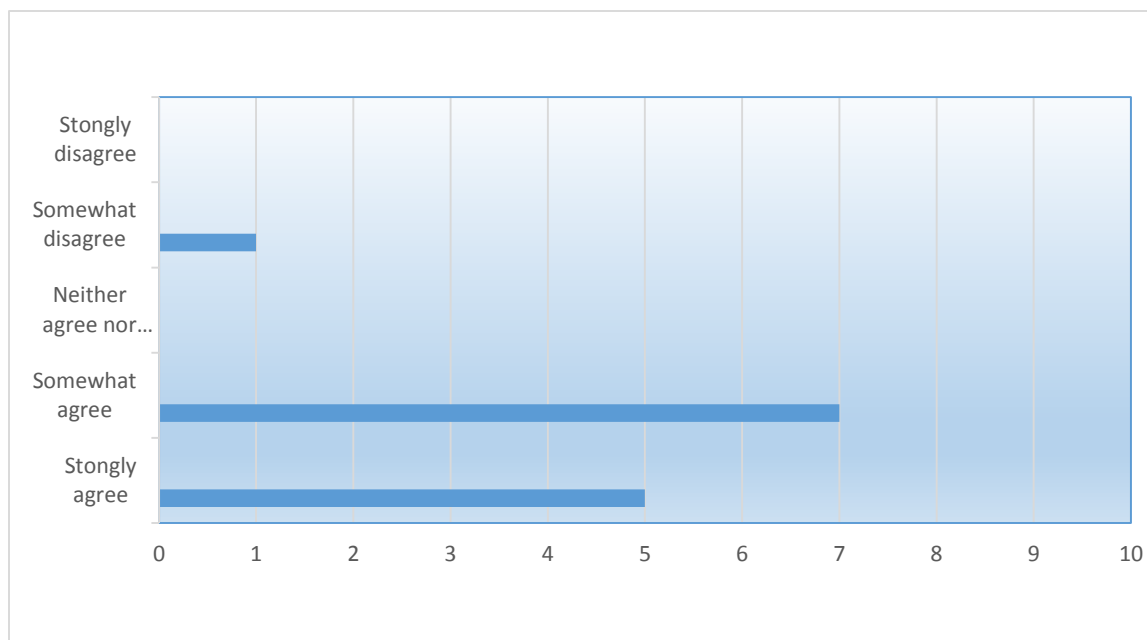


Fig 4.4: The Number of Participants Who Agreed or Disagreed That the IDDSI Made Communication Easier

Respondents were given five options to choose from extremely useful to not at all. They identified how useful IDDSI was if they were to describe it to people who had not yet implemented it. Fig 4.5 shows that most of the respondents believed it was very useful ($n = 8$, 61.54%), and four of them thought it was extremely useful ($n = 4$, 30.77%). However, one participant believed that IDDSI was not at all useful ($n = 1$, 7.69%).

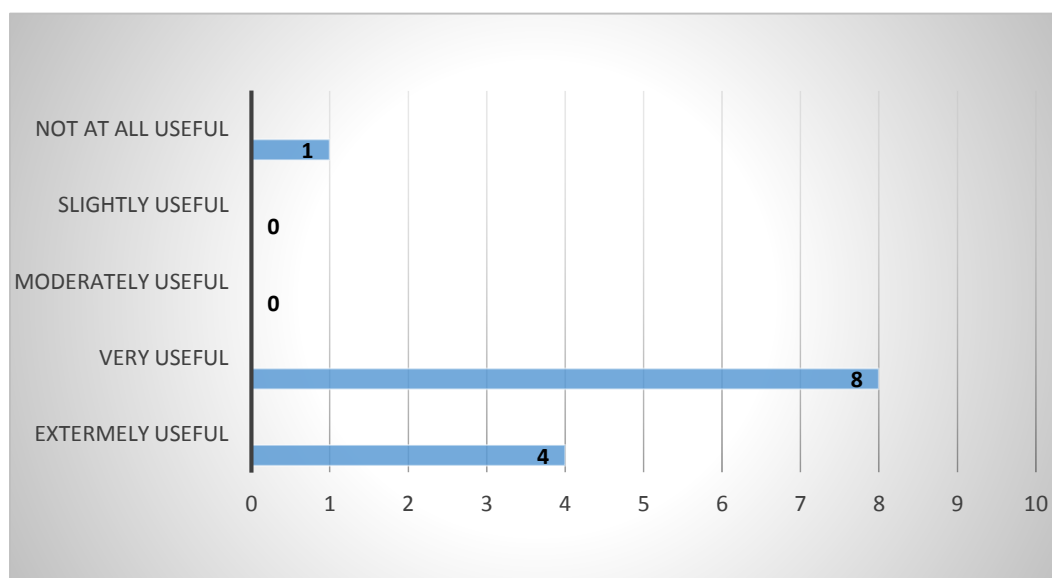


Fig 4.5: Participant-Reported IDDSI Usefulness

The participants were asked to provide open responses regarding what worked successfully after the IDDSI implementation that did not work before. Table 4.5 identifies codes generated using content analysis and provides supporting quotes. Most of the respondents reported that the IDDSI ensured that correct diet consistencies were provided to patients/residents. Regarding the terminology, IDDSI enabled consistent terminology used among MDT in different settings and with the patients' feedback.

Codes	Sub-category	Supporting Quote
Diet textures	Thicken fluids	" It is easier to thicken fluids "
	Clear criteria	"More specific pass/fall criteria for food textures "
	Correct consistency	"Being able to definitely say if a diet/fluid is the correct consistency as we now have tests"
Consistent terminology	IDDSI levels	"Being able to test for Levels "
	IDDSI guidelines	"Having the same IDDSI guidelines across settings allows for clear transitions for our patients"
	Accurate feedback	"Gives feedback that is concrete and not just coming from the SLT"
Increase awareness	Increased interest	"Increased interest in attending training "
	Increased team work	"There is more discussion/awareness among the MDT about food/drink modification"
	Increased knowledge of dysphagia	"Other disciplines are now more aware of dysphagia due to the implementation of IDDSI"

Table 4.5: Content analysis about what worked successfully after IDDSI implementation

4.8. Recommendations for IDDSI Implementation

Finally, to provide advice to other settings that have not yet implemented IDDSI, participants were asked to provide recommendations to help others implement IDDSI more smoothly. Most of the respondents' recommendations were similar. Training the staff using online tools was reported by multiple participants, as was taking time to plan, being organized, and making

implementation fun and interactive. They also emphasized the MDT member's collaboration and communication between disciplines and services. Thematic analysis was applied to interpret the participants' responses in Figs. 4.6 and 4.7.



Fig 4.6: Thematic Analysis of Training

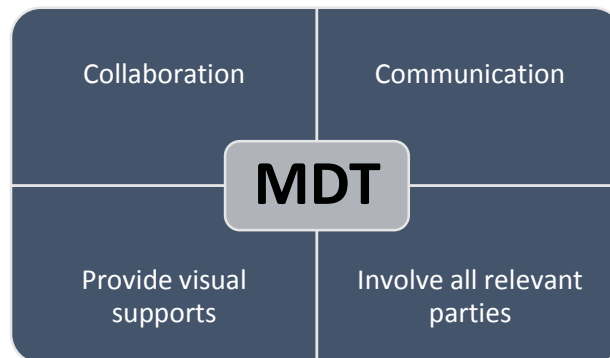


Fig 4.7: Thematic Analysis of MDT

4.9. Summary

Overall, 13 respondents replied to the survey from various residential healthcare settings. This identified the facets of IDDSI implementation from different settings' perspectives. All the participants were speech and language therapists and had implemented IDDSI in their settings. Most of the respondents emphasized similar points, thereby indicating the importance of IDDSI implementation in healthcare settings for dysphagia management. An interpretation of the results, implications, and limitations will be discussed in the next chapter.

5. Discussion Chapter

5.1. Introduction

This study explored IDDSI framework implementation in Irish residential healthcare settings. It determined the barriers and facilitators to its implementation. It overviewed recommendations and advice to improve implementation and avoid obstacles. This chapter provides an interpretation of the study findings, including the study implications and limitations.

5.2. Respondents' Demographic Information

Regarding the respondents' profession, it was unanticipated that all the participants would be SLTs. Most existing literature emphasized that MDT, such as SLT, Nursing, Catering, Dietician, and Occupational Therapist, plays an important role in IDDSI implementation; thus, team members from such a field were expected to respond. The survey was mailed to the settings directly and not to particular individuals, except for the hospital settings that were sent directly to the gatekeeper. The email (Appendix 3) did not restrict survey participation to certain professionals. It asked people who were involved in IDDSI implementation to complete the survey. This finding emphasized the significant role of SLTs in implementing IDDSI, as they were the core of diet recommendations for dysphagia management (Cichero, 2020).

The results regarding the settings in which the participants worked indicated that the respondents from hospital and other settings (community and adult intellectual disability residential services) were equal. The responses from other settings were unexpected because the survey was mailed to hospitals, nursing homes, and hospices only. It was unfortunate that this research lacked hospice responses because the impact of dysphagia is significant for QOL, which is often the focus of hospice care. Note that IDDSI implementation in hospices could assist patients in fulfilling end-of-life goals (Pollens, 2004).

It was useful to obtain responses from different healthcare settings to capture the opinions of participants who worked in different settings. Although the research's aim was to capture responses from residential healthcare settings, community setting responses were included in the results because Irish community settings greatly support people living with dysphagia. Howells et al. (2019) opined that values and approaches differ in the community context; therefore, these responses are valuable to consider various concepts. Community settings were considered to be on par with nursing homes regarding the care it provides and the fact that it is residential, so it included in the data analysis. Besides that, the sample size was small, so every full response was valuable to be included in the data analysis.

5.3. Implementation of IDDSI

Although this study was designed to capture people who have implemented IDDSI, people who are planning to implement IDDSI, and people who have not implemented IDDSI in their settings, all respondents have implemented IDDSI in their settings. This was not unexpected, as Ireland formally announced moving to the IDDSI framework from 2019 (Cichero et al., 2020).

Another important finding regarding MDT involvement in IDDSI implementation is that approximately similar results have been founded among MDT involvement. These results reflect those of Grol and Grimshaw (2003) and Jukes et al. (2012), who found that MDT collaboration is key for successful implementation, and it is often between SLTs and Dietitians. It is important to consider that catering staff members play a vital role in IDDSI implementation (Lam et al., 2017). They prepared meals in different consistencies, following IDDSI criteria, to ensure patients' safety. One of the objectives of this study was to investigate the team members involved in the IDDSI implementation; this objective was met, and the results indicated that Catering and Nursing had a higher rate of involvement in IDDSI implementation.

Although occupational therapists played an important role in dysphagia management, the participants excluded occupational therapists from the MDT involvement of IDDSI implementation. This could be due to the fact that occupational therapists are responsible for improving the independence of eating and using appropriate utensils (Asher, 1986) rather than recommending a texture-modified diet and thickened liquid, which is the responsibility of SLTs and dietitians.

5.4. IDDSI Implementation Barriers and Obstacles

Another objective of the study was to identify barriers to IDDSI implementation by asking open-ended question. This objective was met by analyzing the participants' data, which showed that the lack of training and difficulty organizing meetings at a certain time that suited MDT members who worked in different departments were the main barriers specified by the participants. A possible explanation for this might be a lack of motivation to complete the training or a lack of awareness regarding the importance of the training. Some respondents suggested making the training fun and interactive to motivate the MDT to complete it. A strong relationship between a lack of motivation and patient caring responsibilities was founded by Fahey and Bass (1995), where the majority of nurses could not leave the wards and engage in other activities (e.g., the IDDSI training) due to patients' duties.

Another barrier reported by one participant was a lack of access to computers. This is a major issue because e-learning has become common in recent years to improve healthcare professionals' practical skills (Vaona et al., 2018). Thus, computers and internet access are important in every healthcare setting to enhance the working environment and therefore improve staff productivity and performance. Training during the COVID-19 pandemic was also

considered one of the barriers to IDDSI implementation. The training often required several meetings, communications, and practical work. Socially distanced workplaces were needed during this crisis, and these barriers could be solved using e-learning tools, as suggested by the participants.

To overcome the obstacles during IDDSI implementation, most participants suggested regular meetings for collaboration among the MDT, with a realistic timeframe suitable for every discipline. These meetings are important for discussing the implementation stages and how the plan is going. Time was one of the common obstacles requiring consideration, as each member of MDT works in different departments, and it is difficult to gather them in an appropriate time for everyone. Setting a realistic timeframe and organized timetable might be helpful in overcoming this limitation.

5.5. Implementation Facilitators

Participants reported enablers that support them during IDDSI implementation, and this was one of the objectives of the study that was met. The results indicated that most of the respondents had similar answers, and one of the common responses was using posters and descriptors, placing them in the kitchen and ward. These results, likely, related to the confusion of the old and new terminology. Although IDDSI was implemented in most residential healthcare settings, some MDT members used the old terminology. Thus, using these posters could enhance IDDSI terminology utilization. This finding parallels that of Lam et al. (2017) who emphasized the importance of using IDDSI-standardized labels in patients' meal try cards and whiteboards to help staff members reduce terminology confusion.

After IDDSI implementation, there were several positive consequences addressed by the participants. The most common was consistent language and definitions used across multiple departments and settings. These findings indicate the importance of the standardized terminology of diet modification for using the correct consistency by MDT members. Comparison of these findings with another study confirms the value of interoperability in healthcare sectors, which allows easy access to patient records, reduction of medical errors, and enhanced support for managing chronic diseases (Iroju et al., 2013). These benefits of standardized terminology are important for patients with different medical conditions, especially for dysphagia management.

Another positive factor that emerged after IDDSI implementation was increased awareness of dysphagia. Both outcomes were due to IDDSI training. Increased awareness could be beneficial to patients because it brings knowledge of dysphagia to the minds of different staff members working in the hospital. Moloney and Walshe (2018) found that "by increasing awareness of dysphagia among healthcare professionals, a more person-centered, evidence-based, and high-quality dysphagia management might be possible" (as cited in Helldén et al., 2018, p. 7). However, there is a lack of evidence that awareness of dysphagia/IDDSI improves the situation

for patients; it is known to improve awareness and potentially encourage people to act in other areas like Palliative Care (Seymour, 2018).

5.6. Impact of the IDDSI Framework

The main purpose of IDDSI implementation is to maintain patient safety (Cichero et al., 2017). Determining whether IDDSI was useful for patients from the perspectives of those handling its implementation was one of the met objectives. The results showed that most of the respondents believed that the IDDSI is advantageous to patients with dysphagia. These results support evidence from previous studies (Cichero et al., 2017, 2013; Machado et al., 2019). Further, IDDSI mainly facilitates communication among professionals (Cichero et al., 2017). Most participants agreed with this. This result parallels those of Icht et al. (2018), Steele et al. (2018), Su et al. (2018), and Wu et al. (2021).

Medical data in the healthcare domain is often complicated because it covers various important information, such as patient administration, organizational information, clinical data, and laboratory/pathology data (Ryan, 2006). Maintaining patients' safety in healthcare relies on how successfully professionals exchange information and medical records from one department to another, and from one person to another (Iroju et al., 2013). This result parallels this study's results of the participant's responses, who confirmed that IDDSI could facilitate communication among professionals.

5.7. Participants' Recommendations

The participants provided useful recommendations to support people who have not yet implemented IDDSI. As described in the results, the majority suggested online tools, such as HSeLanD—an online tool that offers learning programs for MDT members. People can access this tool to plan and improve IDDSI implementation. It is ideal to use HSeLanD for e-learning, as it is free and available for all healthcare workers who work in different healthcare settings in Ireland (Gormley, 2012). Another suggestion was the IDDSI website, which provides multiple resources and implementation guides for clinicians and healthcare providers, food and catering staff, and industry (IDDSI, n.d.).

MDT communication and collaboration were other key factors proposed by the participants. For healthcare providers, collaboration is a crucial concept that combines two or more healthcare workers from different disciplines who collaborate to achieve shared aims and objectives (Fewster & Velsor, 2008). Both communication and collaboration can enhance patient's outcomes and improve provider's satisfaction (Baggs et al., 1997; Estabrooks et al., 2005). Healthcare is a complex sector that involves several professionals, such as doctors, radiologists,

nurses, SLTs, and pharmacists, who collaboratively participate and share information needed in the patient's treatment plan (Iroju et al., 2013).

5.8. Implications and Future Directions

IDDSI is considered a new framework in clinical practice. Recognizing what worked and did not work successfully in its implementation is necessary to improve future implementations. This study could benefit every healthcare setting planning to implement the IDDSI framework. It addressed the barriers and obstacles and explored the facilitators that support them from the perspective of people who experience the implementation.

The outcome of this study is valuable for clinical practice, as IDDSI plays an important role in dysphagia management. Many studies have emphasized the significant role of IDDSI in facilitating MDT member's communication to maintain patients' safety. This research could enable clinicians to understand the positive and negative factors of IDDSI implementation. Moreover, it provides an opportunity for other countries that have not yet implemented IDDSI to recognize the barriers and facilitators of IDDSI implementation. However, with a small sample size, caution must be applied as the findings might be insufficient.

5.9. Strengths and Limitations of the Study

The researcher's intention to include various residential healthcare settings across the whole country is important for preventing reporting bias. Another strength is the practical nature of the question asked to participants to support future IDDSI implementation.

Several limitations require consideration in this study. There were only 13 participants, which is considered a small sample size. This limitation can affect the reliability of the research, thereby making it difficult to determine whether the findings are representative. As mentioned earlier, the aim of this study was to examine IDDSI implementation from different aspects, people who have implemented IDDSI, planning to, and not implemented IDDSI. There were two questions for people who were planning to implement IDDSI, and two questions for people who did not implement IDDSI. These questions were missed in the data analysis because all the participants implemented IDDSI. Consequently, two objectives were unmet due to a lack of particular data.

Another limitation was the lack of hospice responses. Each setting's response is valuable to picture different residential healthcare settings. Other research strategies could explore the research aims and objectives better than the survey. For future research, focus groups should include MDT members to discuss IDDSI implementation; this kind of research method might provide more information about IDDSI in hospices. Recall that one of the research aims was to determine the extent to which IDDSI is implemented in Irish residential healthcare settings, but this aim was unachieved due to the poor response rate.

All participants were SLTs, and this would produce a bias in the results, as the researcher was unable to capture other MDT members' thoughts. There might be selection bias because the survey was mailed to a gatekeeper to send to a list of hospitals. The number of hospitals was unknown compared to nursing homes and hospices. Since IDDSI is a relatively new framework, only a few literature has considered it. Thus, embedding the findings of this research into the existing literature is difficult.

5.10. Conclusion

This was one of a few studies that have investigated the IDDSI framework implementation, and the first study to investigate IDDSI in Irish residential healthcare settings. This study overviewed the IDDSI framework and identified the barriers and facilitators of its implementation. The results revealed positive and negative factors contributing to IDDSI implementation and identified the MDT members involved in IDDSI implementation, mostly in hospitals, nursing homes, and community settings. According to the participants' responses, the IDDSI is invaluable for managing dysphagic patients. These results are valuable to integrate it into clinical practice and for future research.

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Appendix 1

This email is sent to the person who owns the Speech and Language Therapy Managers email list.

Dear X,

My name is Mona Allithey; I am an M.Sc. student in Clinical Speech and Language Studies (Trinity College Dublin). I am conducting a study about the Implementation of the International Dysphagia Diet Standardization Initiative (IDDSI Framework) in Irish Residential Healthcare Settings.

I am writing to ask if you would kindly send this email to the members of your mailing list. I am requesting that SLT managers who work in residential healthcare settings (i.e., settings where patients reside on a short-or long-term basis) send this survey to staff who have been involved in IDDSI implementation or for them to complete the survey themselves if IDDSI has not been implemented in their setting.

Kind regards,

Mona

Appendix 2

The second email to the gatekeeper will be to people like the Allied Health managers or secretaries for the nursing homes.

Dear X,

My name is Mona Allithey; I am an M.Sc. student in Clinical Speech and Language Studies (Trinity College Dublin). I am conducting a study about the Implementation of the International Dysphagia Diet Standardization Initiative (IDDSI Framework) in Irish Residential Healthcare Settings. The IDDSI Framework is a way for healthcare settings to describe whether their patients/residents are on a special texture-modified diet (e.g., pureed food or thickened fluids). You do not need to have any knowledge of IDDSI to participate in this study.

The study requires the completion of an online survey. This survey can be taken by those involved in IDDSI implementation in your setting. If IDDSI has not been implemented in your setting, I would be grateful if the survey could be sent to the person you think would be most likely to oversee its implementation if you ever decided to use it. This is because I also want to capture the views of those settings that have not use IDDSI. The survey takes approximately ten minutes.

Kind regards,

Mona

Appendix 3

Q1 Survey Introduction

Purpose

The International Dysphagia Diet Standardization Initiative (IDDSI) is a framework used to describe diet modifications for people with dysphagia. To date, there is a lack of investigation into the feasibility of using IDDSI in residential healthcare settings. This study explores the implementation process of the IDDSI in Irish residential healthcare settings, identifies people involved in the implementation process, people who are planning to implement the IDDSI, and determines the reasons some healthcare settings have not implemented the IDDSI.

Should I take this survey?

You are invited to take this survey if you are in the Republic of Ireland and meet the following criteria:

- Working in Irish residential healthcare settings (i.e., healthcare settings where people reside in the short or long term).
- Staff who have been involved in the IDDSI implementation.
- Planning to implement the IDDSI framework in your setting.
- If IDDSI was not implemented, people who would be responsible for such a decision (to identify potential barriers and avoid recruiting only those who have implemented it).

Instructions

Only one member from each team (e.g., Speech and Language Therapist, Dietician, Catering) should complete the survey. The questionnaire comprises both open-ended and closed-ended

questions. The estimated completion time is 10 minutes. You can take this survey on your phone or computer.

Who is running this survey?

Mona Allithey (Allithem@tcd.ie) is the principal investigator. She is an M.Sc. student in Clinical Speech and Language Studies at Trinity College Dublin.

Dr. Ciarán Kenny (ciaran.kenny@tcd.ie) is the research supervisor and co-investigator. He is an Assistant Professor and Postgraduate Program Coordinator in the Department of Clinical Speech and Language Studies at Trinity College Dublin.

Your rights

Your participation is completely voluntary; you do not have to participate if you do not wish. Only fully completed survey responses will be counted; therefore, any participants who do not submit their surveys in full will be considered to have withdrawn. Surveys are fully anonymous, so no surveys can be withdrawn once submitted.

Your data

The data will be held confidentially and secured for research purposes only. The survey does not collect identifiable information to protect your anonymity. You should also avoid answering any questions in a way that could identify you. Responses to this survey may be made publicly available, e.g., through publication in a journal. This is to allow for “secondary analysis,” which means that your responses could help other researchers answer new questions. By clicking Next at the bottom of this page, you consent to participate.

Has this research been approved?

Yes, it was approved by the Research Ethics Committee of the School of Linguistic, Speech and Communication Sciences, Trinity College Dublin (Reference: HT26).

Who should I contact for information or complaints?

Principal Investigator: Mona Allithey (Allithem@tcd.ie)

Research supervisor, co-investigator: Dr. Ciarán Kenny (ciaran.kenny@tcd.ie)

The Data Controller for this research is Trinity College Dublin (dataprotection@tcd.ie)

End of Block: Introduction

Start of Block: Demographic Information

Q2 What is your profession?

- ☐ Speech and language therapist (1)
 - ☐ Dietician (2)
 - ☐ Catering (3)
 - ☐ Nursing (4)
 - ☐ Occupational Therapist (5)
 - ☐ Other (please specify) (6) _____
-

Q3 In which setting do you work?

- ☐ Hospital (1)
- ☐ Hospice (2)
- ☐ Nursing home (3)
- ☐ Other (please specify) (4) _____

End of Block: Demographic Information

Start of Block: Service delivery

Q4 Have you implemented the IDDSI framework in your setting?

- ☐ Yes (1)
- ☐ We are planning to (2)
- ☐ No (3)

Display This Question:

If Q4 = 3

Q5 What are the obstacles or reasons that hinder you from implementing the IDDSI framework?

Display This Question:

If Q4 = 3

Q6 What is the likelihood that you might implement the IDDSI framework in your setting in the future?

- ☐ Extremely likely (1)
- ☐ Somewhat likely (2)
- ☐ I don't know (3)
- ☐ Somewhat unlikely (4)
- ☐ Extremely unlikely (5)

End of Block: Service delivery

Start of Block: The implementation process

Display This Question:

If Q4 = 1

Q7 What other co-workers were involved in implementing the IDDSI in your setting apart from yourself? (You can choose more than one option).

- ☐ Speech and language therapist (1)
- ☐ Dietician (2)
- ☐ Catering (3)
- ☐ Nursing (4)
- ☐ Occupational Therapist (5)
- ☐ Other (please specify) (6) _____

Display This Question:

If Q4 = 1

Q8 When did you implement the IDDSI in your setting?

☐ 2015 (1)

☐ 2016 (2)

☐ 2017 (3)

☐ 2018 (4)

☐ 2019 (5)

☐ 2020 (6)

☐ 2021 (7)

End of Block: The implementation process

Start of Block: Negative factors

Display This Question:

If Q4 = 1

Q9 Imagine you are providing advice to another setting that wants to implement the IDDSI.
Please describe any barriers you faced during implementation:

Display This Question:

If Q4 = 1

Q10 How did you overcome the obstacles you faced during implementation?

Display This Question:

If Q4 = 2

Q11 Imagine you have started implementing IDDSI in your setting. Please describe any barriers that you think you will face during implementation:

Display This Question:

If Q4 = 1

Q12 Imagine you are providing advice to another setting that wants to implement the IDDSI. Please describe any facilitators that help you during implementation:

End of Block: Negative factors

Start of Block: Positive factors

Display This Question:

If Q4 = 1

Q13 Do you think that IDDSI is valuable in your setting?

Not valuable at all

Extremely valuable

0 1 2 3 4 5 6 7 8 9 10

Please choose from 0 to 10 ()



Display This Question:

If Q4 = 1

Q14 Do you think that IDDSI has been beneficial overall to patients/residents with dysphagia?

- ☐ Yes (1)
- ☐ Maybe (2)
- ☐ No (3)

Display This Question:

If Q4 = 1

Q15 What works successfully after IDDSI implementation that did not work before?

Display This Question:

If Q4 = 2

Q16 Imagine you have started implementing IDDSI in your setting. Please describe any facilitators that you think will help you during implementation:

Display This Question:

If Q4 = 1

Q18 Do you agree that the IDDSI makes communicating diet information with other healthcare professionals easier?

- ☐ Strongly agree (1)
- ☐ Somewhat agree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat disagree (4)
- ☐ Strongly disagree (5)

End of Block: Positive factors

Start of Block: Recommendation

Display This Question:

If Q4 = 1

Q17 How useful would you say IDDSI is if you were to describe it to people who have not yet implemented it?

- ☐ Extremely useful (1)
- ☐ Very useful (2)
- ☐ Moderately useful (3)
- ☐ Slightly useful (4)
- ☐ Not at all useful (5)

Display This Question:

If Q4 = 1

Q19 Imagine you are talking to a colleague who works in a setting that has not yet implemented IDDSI. What recommendations or advice would you give them to help improve implementation?

End of Block: Recommendation

Appendix 4



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Application	Academic Year 2020/21
Applicant Code	HT26
Applicant/Supervisor Name	Mona Allithey / Dr Ciarán Kenny
Title of Research	The Implementation of the IDDSI Framework in Irish Residential Healthcare Settings: A Survey
Date of this letter	08/03/2021

Dear Mona,

Your submission for ethical approval for the research project above was considered by the Research Ethics Committee, School of Linguistic, Speech and Communication Sciences, Trinity College Dublin on 05/03/2021 and has been approved in full **subject to you implementing one change as follows.**

- In your survey introduction page under Your Data, please add a sentence at the end of that paragraph that says "By clicking Next at the bottom of this page you consent to participate."

Please note:

- (i) On completion of research projects, applicants should complete the *End of Project Report Form* (which can be found at: <https://www.tcd.ie/slses/research/ethics/>) and submit one electronic copy (to slses@tcd.ie)
- (ii) The REC requests, in particular, that you attend to your commitments regarding the storage and destruction of data arising from this research, in keeping with REC policy and General Data Protection Regulation (GDPR) guidelines.

We wish you every luck with your research.

Best wishes,

A handwritten signature in black ink, appearing to read 'Ciarán Kenny'.

Dr Ciarán Kenny
Chair, Research Ethics Committee
School of Linguistic, Speech and Communication Sciences

Scoil na nEalaíochtaí Teangeolaíochtaí,
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Coláiste na Tríonóide,
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