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RESEARCH PAPER

Texture-modified foods and thickened fluids used in dysphagia: Israeli standardised terminology and definitions

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Abstract

Background: Texture-modified foods and thickened fluids are used as a strategy that aims to compensate for dysphagia and improve the safety and efficiency of swallowing. Currently, in Israel, there are no standardised terminologies and definitions for texture-modified diets. The inconsistent terminology adversely affects patient safety and the efficiency of communication between staff members both within and between health institutions. This present study describes a project of the Israeli Ministry of Health in which the labels and definitions of prevalent foods and fluids used in health institutions are mapped to develop a consensus on national standards.

Methods: A multidisciplinary committee of speech-language pathologists (SLPs) and registered dietitians (RDs) was appointed. A questionnaire was developed to identify the labels of texture-modified foods and fluids used in the Israeli healthcare system. The questionnaire included questions on knowledge, attitudes and barriers related to the need for a consistent national terminology for texture-modified diets. Questionnaires were sent to 120 institutions. The project was conducted between September 2016 and December 2017.

Results: Twenty-six SLPs and 42 RDs responded. The answers revealed that there were 50 labels in use for texture-modified foods. When asked to describe the texture of a particular food item, up to 17 different labels were used. There was broad support for a standardised terminology.

Conclusions: The results of the present study confirm the lack of national standards in clinical practice and the need for a consistent terminology. A consensus was achieved between the committee members and the committee adopted the International Dysphagia Diet Standardization Initiative (IDDSI) recommendations and adapted the terminology to Hebrew.

Introduction

Dysphagia and feeding disorders can be found in all age groups and their prevalence increases with advanced age [(1)]. Swallowing difficulties increase the patient's risk of malnutrition and dehydration as a result of the restriction of oral foods and liquids. In addition, risks of choking and food aspiration often occur, leading to aspiration pneumonia, resulting in increased hospitalisation days, frailty, illness, anxiety [(2)] and decreased survival (e.g. it was recognised as a contributing factor in the death of a nursing home resident) [(3)]. The use of texture-modified foods and fluids is recognised worldwide as one of the most common treatment approaches for individuals with dysphagia. For both foods and fluids, there are varying degrees of texture modification [(4)].

A literature review indicates that various labels are applied to a relatively small number of food textures and fluid thicknesses. For example, the terms 'mildly thick fluids', 'moderately thick' and 'nectar' can be used to describe the same texture level [5]. Along with the adverse effects of the inconsistent terminology on patient health and safety, this negatively affects communication within and between the multidisciplinary staff of different health institutions, resulting in confusion and misinterpretations. To overcome these difficulties, several countries have developed national standardised terminologies [5].

Currently, in Israel, two main groups of allied health professionals, speech-language pathologists (SLPs) and registered dietitians (RDs), are involved in the treatment of dysphagia patients. The SLPs are responsible for assessing and diagnosing dysphagia and recommending suitable texture-modified diets. The roles of RDs is to translate these recommendations into an appropriate menu, considering patient preferences, comorbidity, menus and the choices available. However, there are no standardised terminologies and definitions for texture-modified diets. This may contribute to interdisciplinary miscommunications.

Addressing this issue, the Ministry of Health decided to identify the labels and definitions of prevalent foods and fluids used in medical institutions. These labels were used as a basis for the development of a standardised consensus-based terminology, which is culture and language specific, in accordance with the nomenclature developed by the International Dysphagia Diet Standardization Initiative (IDDSI) [6,7]. The present study describes this project.

Materials and methods

This project involved three phases: (i) a preliminary phase, which involved appointing an advisory committee and developing a specific questionnaire; (ii) a biprofessional survey, where questionnaires were sent to different healthcare institutions to be completed independently by RDs and SLPs; and (iii) the establishment of the final recommendations. The project commenced in September 2016 and was completed in December 2017. The three phases are presented below.

The preliminary phase

An advisory committee was appointed by the Israeli Ministry of Health. The 17 committee members were all experts in the field of swallowing and dysphagia, as well as professionals in Dietetics and Speech-Language Pathology, from various organisations. The committee aimed to have representation from as many different healthcare settings as possible. Specifically, it comprised SLPs and RDs from the Ministry of Health and various healthcare facilities that administer health services in public, geriatric and rehabilitation hospitals; acute and chronic hospitalisation departments; mental health institutions; and children's rehabilitation day care centres. It also included professionals from Community health services and from academic institutions. The participation in the project was voluntary. Communication between the advisory committee members was via regular meetings and teleconferences.

Following an initial meeting, the members of the committee developed a questionnaire to identify and review the labels of textures used by SLPs and RDs working in the healthcare system. The questionnaire also included personal information (e.g. sex, years of professional experience and workplace details) and questions regarding the knowledge, attitudes and barriers related to the need for a consistent texture modification terminology (see Supporting information, Appendix S1). The survey was approved by the local ethics committee.

A biprofessional survey

A list was made of all healthcare institutions that employ RDs and SLPs (or only RDs as in mental health facilities). These institutions were classified according to their type: geriatric rehabilitation facility and long-term care (n = 303); general hospital (n = 15); and mental health facility (n = 13). In each type, a random sample was generated to give a total of 120 healthcare institutions across Israel (the distribution of institutions in the final sample reflected the original distribution). The questionnaires were sent via e-mail to be completed independently by their SLPs and RDs. Telephone calls were placed to potential respondents and they were given reminders about completing the questionnaires.

The completed questionnaires were sent to a designated e-mail address. Two research assistants (SLP students) coded the questionnaires and summarised the data (Table 1).

Establishing final recommendations

The final phase in the project was to achieve a consensus between the committee members to establish a consistent terminology for texture-modified diets. Based on the results of the survey, the committee formulated a consensus document, adopting the IDDSI framework, which is a global initiative recommending the implementation of standardised textures terminology throughout the world [7]. The committee approved a scale for food and a scale for fluids, adapted the IDDSI terminology to Hebrew, and provided labels and an accompanying description of the food and fluid textures.

Table 1 Demographic profile of respondents

Background data	% All	% RDs	% SLPs
Sex			
Male	11.7	4.7	23.1
Female	88.3	95.3	76.9
Years of work in profession			
<5	35.3	30.9	42.3
5–10	22.1	9.6	42.3
>10	42.6	59.5	15.4
Workplace			
Long-term care institution	72.1	69.1	76.9
Post-acute Geriatric facility	10.3	7.2	15.4
General hospital	8.8	9.5	7.7
Psychiatric hospital*	8.8	14.2	–

*SLPs do not work in these institutions. RD, registered dietititian; SLP, speech-language pathologist.

Results

Demographic data of the respondents

The questionnaires were completed by 26 SLPs and 42 RDs from various frameworks (from 57 different institutions). Table 1 shows the demographic data of the respondents, according to their profession.

Terminologies and definitions for texture-modified diets

The respondents were asked to label the textures of 28 common foods and fluids, all frequently provided in health institutions. The responses revealed a large number of different texture labels for foods ($n = 30$) and for thickened fluids ($n = 20$) in current use. According to the responses, these 28 listed foods and fluids were classified into three groups, defined by the level of inconsistency in terminology: (i) relatively consistent terminology (0–5 texture labels); (ii) low consistent terminology (6–9 labels); and (iii) no consistent terminology (>10 labels). For example, mashed potatoes and jello (gelatin-based dessert), often prescribed for dysphagic patients, were labelled with 13 and 17 different labels, respectively.

To perform inter- and intradisciplinary analyses, the 50 given texture labels were assigned to seven different texture categories, four categories for foods: Regular; Soft; Minced and Moist; and Pureed, as well as three categories for fluids: Thin; Thickened; and Heterogeneous. The inconsistency in terminology was also reflected in this classification for texture categories because most of the food items were classified into more than a single category (up to six categories). For example, cooked salad was labelled with 14 different labels, which matched four different categories (Regular; Soft; Minced and Moist; and Pureed).

Table 2 presents the number of foods and fluids (listed in the questionnaires) according to their level of (in)consistency in terminology (consistent, low and no consistency) for the SLPs and the RDs. It also shows the number of matched texture categories. Table 2 indicates that most foods and fluids (60–70%, for SLPs and RDs, respectively) were characterised with a low consistency of terminology (6–9 labels and 2–5 categories; shadowed). The full list of all the foods and fluids and the respective numbers of label and texture categories given by SLPs and RDs are provided in the Supporting information (Appendix S2).

Chi-squared tests were used to compare the types of texture categories used by all respondents (RDs and SLPs) for each of the listed foods and fluids with the expected type of texture category (according to the expert committee members). For example, the respondents classified meatballs into four categories: Regular; Soft; Mashed; and Pureed, whereas the committee classified it as Soft, which is a considerable difference. All 28 chi-squared tests showed a significant difference between the categories used by the respondents and the appropriate type of texture category (all $P < 0.05$).

Intradisciplinary analysis

Although the subgroup of SLPs was relatively small ($n = 26$), high variability in texture terminology was found, with a mean (SD; range) number of 7.7 (2.56; 3–15) texture labels for the listed foods and fluids. The mean (SD; range) number of texture categories for food and fluids was 3 (1; 1–6).

High variability in texture terminology was found also for the subgroup of RDs ($n = 42$), with a mean (SD; range) number of 9.3 (3.54: 5–25) texture labels. The mean (SD; range) number of texture categories was 3.55 (1.02; 2–6).

Table 2 The number of foods and fluids according to their level of consistency in terminology, as well as the number of categories, for the speech-language pathologists (SLPs) and the registered dietitians (RDs)

	SLPs		RDs	
Consistency of terminology	Number of categories	Number of foods and fluids	Number of categories	Number of foods and fluids
Relatively consistent (0–5 labels)	1–3	6	2	1
Low consistency (6–9 labels)	2–4	17	2–5	20
No consistency (10 labels or more)	3–6	5	3–6	7

Interdisciplinary analysis

Comparing the number of texture labels between SLPs and RDs revealed a significant difference ($t_{27} = 2.00$, $P = 0.027$). Similarly, the number of texture categories between the pair of professions significantly differed ($t_{27} = 2.21$, $P = 0.018$).

Evaluating the given labels for each of the food and fluids listed in the questionnaires revealed that, for approximately 50% (13 of 28), significant interdisciplinary differences were found using chi-squared tests. This result demonstrates the difference between SLPs and RDs. For example, SLPs classified meatballs with four texture labels, all within a single category. However, RDs classified this food with 10 different labels, within four categories, which is a significant difference ($\chi^2 = 0.25$, d.f. = 2, $P = 0.007$. Milkshake was classified by SLPs with 15 texture labels, within six categories, whereas RDs classified it with eight texture labels, within five categories ($\chi^2 = 2.08$, d.f. = 2, $P = 0.045$).

Attitudes and barriers related to the need for a consistent texture modification terminology

Eighty-eight percent of all respondents indicated their agreement with the need for a standardised terminology and definitions for texture-modified foods and fluids. Yet, approximately sixty-three percent were concerned about difficulties that may impede the assimilation and implementation of the terminology. The main obstacles raised in the questionnaires were difficulties related to the involvement of the daily staff members: nursing staff, food service staff (kitchen and staff serving food in wards) and caregivers.

The respondents mentioned some possible difficulties, such as lack of cooperation, lack of knowledge and resistance to change among the different staff members. The respondents also mentioned allocation of time to assimilate the new terminology as a possible barrier.

Evaluating the advantages that the respondents see in a unified terminology, the safety of the patient was the most significant advantage (96% of the SLPs; 87% of the RDs), in addition to maintaining a continuum of care (92% of the SLPs; 87% of the RDs). The least significant benefit was an improvement in the patient's quality of life (70% of the SLPs; 62% of the RDs).

In terms of the manner of applying and implementing the new terminology in the field, the respondents considered that the most effective ways should vary according to the type of professionals. The optimal implementation method for the cooking staff, those serving food and the caregivers was the use of images of textures (55%). The preferred implementation method for physicians and administrative staff, as well as for the nursing staff, was the issuing of some directives and guidelines (32.3% and 44%, respectively). For the SLPs and RDs, the issuing of directives and guidelines and presentations (50%) was the most effective method. These results imply that a Train-the-Trainer educational model may be the most suitable method with respect to the implementation of the standardised terminology and definitions for texture-modified foods and fluids in the Israeli health system [8].

Establishing final recommendations

Based on these results, the committee members formulated a consensus document and defined a consistent terminology for a texture-modified diet. The committee approved a five-category scale for foods and a five-category scale for fluids. The category names were those mostly used by the respondents. For example, 100% of the respondents used the texture category 'Hard/Solid';

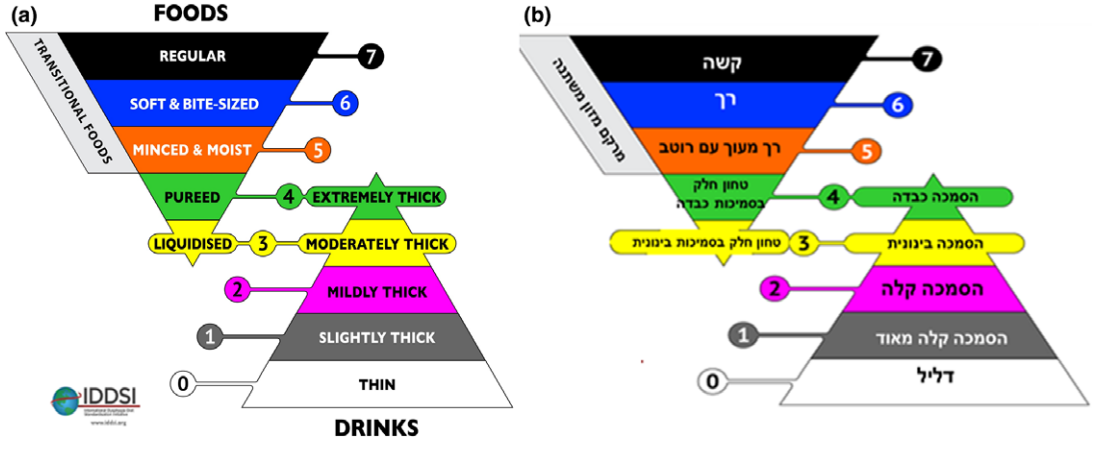

Figure 1 (a) The IDDSI terminology (The International Dysphagia Diet Standardisation Initiative 2016 @http://iddsi.org/framework/), and (b) the Hebrew corresponding terms.

thus, it was selected for the final terminology. Most respondents (69% of the SLPs; 62% of the RDs) used the term 'Soft', and so this was also included in the final recommendation document. In general, the committee adapted the IDDSI terminology (Fig. 1a) and provided the Hebrew corresponding terms (Fig. 1b). The committee also provided appropriate labels and an accompanying description of the food and fluid textures.

Discussion

The benefits of a standardised terminology and definitions for foods and fluids have previously been demonstrated worldwide (e.g. in the UK, USA, Australia, Japan, New Zealand and Ireland). A standardised terminology improves patient safety, interprofessional collaboration and the continuum of care for individuals with dysphagia. The present study describes a project of the Israeli Ministry of Health in which the labels and definitions of prevalent foods and fluids used in health institutions are mapped to develop a consensus on national standards. Based on our results, and the IDDSI terminology, the committee formulated a consensus document. The new terminology is to be distributed among the various institutions as regulatory legislations, and it is expected that institutions will apply them within their policy and procedures. The Israeli healthcare system now faces the challenge of the dissemination and implementation of these new standards and the uptake of these consensus terminologies.

Limitations

There were several limitations to the survey used in the present study. The total number of respondents was lower than expected (n = 68) and, of the respondents, the number of SLPs was low relative to the number of RDs. The questionnaires were sent to SLPs and RDs, although other staff members (e.g. nurses, kitchen staff and food handlers) were not included. Future studies may focus on these professionals. The current project was not intended to address clinical aspects such as the nutritional adequacy or patient acceptability of texture-modified diet. An objective measurement of thickened foods and fluids (e.g. viscosity measurements) was not within the scope of the survey.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate and transparent account of the study being reported, that no important aspects of the study have been omitted, and that any discrepancies from the study as planned (and, if relevant, registered) have been explained. The reporting of this work is compliant with *STROBE* guidelines.

Conflict of interests, source of funding and authorship

The authors declare that they have no conflicts of interest.

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OBB, JK, RG, OH and RE designed the study. MI collected and analysed the data. MI and OBB drafted the manuscript. JK and RG provided feedback with respect to the interpretation of the findings and revised the manuscript.

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Supporting information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix S1. Questionnaire.

Appendix S2. The full list of foods and fluids and the respective number of label and texture categories given by speech-language pathologists (SLPs) and registered dietitians (RDs).

