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The Malta Journal of Health Sciences is a peer-reviewed, open access publication that promotes the sharing and exchange of knowledge in Health Sciences. It provides a platform for novice and established researchers to share their findings, insights and views within an inter-professional context. The Journal originates within the Faculty of Health Sciences, University of Malta.

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Guest Editorial

Long COVID and interprofessional education; some reflections

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There is significant evidence to indicate that effective interprofessional education (IPE), defined as "occasions when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (CAIPE, 2010) is a strategy that enables effective collaborative practice (WHO, 2010). Its uniqueness lies in deliberately creating heterogeneous groups by bringing together students from different professions around a common task.

The idea that collaborative practice can improve health care is not new and has been around for more than five decades (WHO, 1973). However, despite the strong imperatives for IPE worldwide, implementation remains patchy. A scholar compares IPE development to the mythical Sisyphus in which "each forward push seems to end with a return to a new point of origin, with little tangible evidence of permanence" (Baldwin, 2007). The reasons for this are multifold: IPE appears to be bedeviled by academic, professional, organisational, structural, philosophical and sociological barriers. Furthermore there are complexities of definition, purpose and methods associated with its development and delivery. Achieving an interprofessional agenda calls for a paradigm shift at micro (interactional and professional socialisation processes), meso (administrative and organisational) and macro (systemic, political and institutional) levels (Oandasan and Reeves, 2005).

The COVID-19 pandemic has unmasked health care and highlighted the importance of teamwork at every level and at every position across health care. Beautiful examples of increased levels of collaboration across professions are and were plentiful. A number of practice settings upskilled and prepared health professionals for roles they would traditionally not have performed. In some practices, clinicians reported an "increased interprofessional feeling" with greater communication and collaboration pertaining to patient care and protocols (Langois, et al., 2020).

The future trajectory of this pandemic is uncertain and we, as health professional educators, have the responsibility to prepare our students to provide high-quality and compassionate care to COVID-19 patients both with acute symptoms, as well as a growing number of patients who are experiencing prolonged symptoms. In the beginning of the pandemic much of the focus was on capacity building in emergency departments and intensive care to address the well documented cardiovascular symptoms; the morbidity of the illness was undervalued. However, recent studies are showing that a growing number of patients with COVID-19 will experience prolonged and fluctuating symptoms over an average duration of 6 months, known as Long COVID (Alwan, 2021).

To date, there is no agreed definition on the label of Long COVID nor is there standardised diagnostic criteria, except that of a collection of symptoms that develop during or following a confirmed or suspected case of COVID-19 and which continue for more than 28 days. Long COVID seems to be an umbrella term for the most diverse of long-term sequalae. The most frequent symptoms reported after 6 months were fatigue, post-exertional malaise and cognitive dysfunction (Davis, et al., 2021). There is also growing evidence of long-term neurological and psychiatric manifestations that include psychosis, neurocognitive syndrome, affective disorder,

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Guillain-Barré syndrome and cerebrovascular events (Ellul, et al., 2020).

It is evident that Long COVID is a multi-organ condition involving a range of physical, cognitive, and psychological symptoms which will have occupational, economic and social implications (Norton, et al., 2021). During the pandemic, occupational therapists worked with people so as to develop strategies to facilitate continued access to their occupations, which include, but are not limited to: individual, family, community, social and environmental adaptation, mental health, assistive technology and telehealth (WFOT, 2020). They also played a role in preventive health care by developing wellness programmes and resources (Mynard, 2020). However Long COVID necessitates more than singular professions working in silos. Multiple health professions are needed now, and in the future, to work collaboratively with people who are in recovery from COVID-19 complications and/or who suffer long-term effects of the systemic complications (Norton, et al., 2021).

However, a multidisciplinary or interprofessional clinical approach does not happen in a vacuum. Contrary to the assumption and expectation from both educational and health service providers that health graduates would 'naturally' learn to work together once they are in practice, collaboration in practice is more complex. It is about relationships; learning to work together and not just alongside each other (Meads and Aschcroft, 2005). It necessitates planned initiatives designed to promote opportunities to learn and change, and this can be embedded throughout our professional health education, both at undergraduate and post-graduate levels. Several factors are essential for the success of such initiatives not least faculty commitment, resources and administrative support; these must not be overlooked or underestimated. There are already some examples of good collaborative practices occurring at our faculty and these must be strengthened.

The pandemic could be an unique opportunity for us educators, practitioners and researchers to learn how to manage this condition and shape future practice within an interprofessional context. As health care professionals, we have the resources and knowledge to cope with uncertainty. From an educational perspective, the many students housed in our faculty need to be educated on how to work together towards the common goal of reconstructing meaningful lives in the context of profound disruption in the face of Long COVID.

Could this be the time to create collaborative spaces between interprofessional education and interprofessional practice? Some ideas come to mind. Perhaps we could start with a pilot initiative across a few professions at our faculty using shared thematic interests. Or we could develop an interprofessional training module, programme and/or resources focusing on returning to physical and mental health following Long COVID? Or maybe a collaborative community-based population research study to understand the true picture of Long COVID?

The road to addressing this new reality is challenging but one thing is evident; our professions and collaborative care and management matter now more than ever. This could be the time during which we, as a faculty, can start to walk the talk and slowly start sowing the seeds to transform uni-professionality to inter-professionality using Long COVID as our focus. As Charles Darwin reminds us, "it's not the strongest or most intelligent species that survives, but the one most responsive to change". We cannot and should not stand still.

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Research Paper

The Viability of the English-Maltese Assessment of Speed of Handwriting

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Abstract: This research discusses the viability of the English-Maltese Assessment of Speed of Handwriting (EMASH), a bilingual assessment battery that was developed to identify handwriting difficulties in 14–15-year-old Maltese students. Since there are no locally available standardized assessments that measure writing speed performance, the aim of this study was to pilot the novel assessment on a small sample of participants prior to the main data collection stage. A cross sectional, quantitative research design was applied. The English and Maltese versions of the assessment were administered to 70 (34 boys and 36 girls) participants from Maltese state, independent and church schools. Measures of face and content validity, internal consistency, reliability and discriminative validity were conducted. These validity and reliability measures, together with participant performance and feedback, determined the changes that needed to be made to the administration, instructions, format and content of the assessment battery, prior to its standardization. The EMASH proved to be a valid and reliable tool.

Keywords: EMASH, bilingual, assessment, writing disorders, handwriting speed

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Introduction

The aim of this research is to present the findings of the pilot study conducted to test the viability of the English-Maltese Assessment of Speed of Handwriting (EMASH), a novel bilingual (Maltese and English) writing speed diagnostic assessment battery, developed to measure the handwriting speed of 14–15-year-old Maltese pupils. This age group was selected as it is at this age that writing approximates the speeds typically obtained by adults (Graham et al., 1998), and hence determine the maximum writing speeds reached by secondary school students. It is also at this age that students in Malta are usually tested when granted access arrangements for their national examinations. The EMASH is intended to identify students experiencing difficulties with handwriting speed, struggling writers and students who are at risk of writing disorders, namely dysgraphia. It can be used as a diagnostic tool by psychologists, occupational therapists, speech and language pathologists, as well as teachers. Students with writing disorders generally make poor use of punctuation, resulting in run-on sentences without paragraphs; have poor spatial planning; a cramped grip which may result in hand pain; poor spelling including missing letters and unfinished or missing words; frequent erasing; sudden changes in the size and directionality of letter writing; and are usually unable to speed up when instructed. This results in slow writing speeds so that students with writing difficulties require extra time to complete written work. Teachers are in the best position to identify children with writing difficulties (Van Waelvelde et al., 2012). Teachers can confirm any suspected handwriting problems with a quick, valid and reliable screening instrument such as the EMASH, before referring to a diagnostic centre. Locally this could

be the Child Development Assessment Unit (CDAU), or a private clinic. Screening children with handwriting difficulties is important since these usually occur with other developmental disorders, such as Developmental Coordination Disorder (DCD), Attention Deficit Hyperactive Disorder (ADHD), autism, and dyslexia (Van Waelvelde et al., 2012). Locally, dyspraxia is diagnosed using handwriting assessment tools such as the Detailed Assessment of Speed of Handwriting (DASH) (Barnett et al., 2007) and the Evaluation Tool of Children's Handwriting (ETCH) (Amundson, 1995), as well as motor coordination assessment tools such the Movement Assessment Battery for Children – 2nd Edition (MABC-2) (Henderson et al., 2007), and The Beery-Buktenica Developmental Test of Visual-Motor Integration (VMI) (Beery et al., 2010); (F. Bonnici, personal communication August 25, 2021). The EMASH is an adaptation of the Detailed Assessment of Speed of Handwriting (DASH) (Barnett at al., 2007), a previously standardized English assessment battery. The objectives of the pilot study were:

- to consider the challenges participants encountered during testing, and their feedback about the tests, and
- to conduct measures of validity and reliability, and update the administration, instructions, layout, format and content of the assessment battery, as per recommended changes.

Assessments of handwriting speed developed in various countries vary with regards to the type of writing speed tasks, the duration of the tasks, the writing accessories used, or the instructions imparted. Writing tasks include copying tasks, writing from memory, writing to dictation or free-writing tasks, and may range from one to thirty minutes. Pens and papers, or digitized tablets may be used. Participants could be asked to write quickly, at a normal speed or in their best handwriting. As early as 1915, Starch asked participants in the United States (US) to write from memory, for two minutes, and at natural speed, the phrase, "Mary had a little lamb". In contrast, different instructions could be asking the children to copy the phrase "cats and dogs" as quickly as possible on lined paper for two minutes, as did Ziviani and Elkins (1984) in Australia. Phelps et al. (1985) asked children in the US to copy a passage on unlined paper, at their own usual pace, for two minutes. Wallen et al., (1996) asked children in Australia to copy the sentence "The quick brown fox jumps over the lazy dog" as quickly but as organised as possible, on a lined page, for three minutes. O'Mahony et al. (2008) asked students in Ireland to write the sentence "The quick brown fox jumps over the lazy dog" as quickly and as neatly as they could for a three-minute period, stop for 30 seconds, skip two lines, and continue writing the sentence for a further nine minutes. A study by Horne et al. (2011) in the United Kingdom (UK) asked participants to write by hand for seven minutes, a computer dictated short story. Also in the UK, Allcock (2001) expected participants to write freely about a topic of their own choice for 20 minutes.

Adaptation Studies of the DASH

The DASH (Barnett et al, 2007) constitutes of four writing subtests, and an optional graphic speed subtest. The Copy Best subtest requires participants to copy the pangram. "The quick brown fox jumps over the lazy dog", in their best handwriting, for two minutes. The Copy Fast subtest requests participants to copy the same pangram as fast as possible, but legibly, for the same length of time. The alphabet writing task requires participants to complete the letters of the alphabet in sequence for a minute. For the Graphic Speed test, participants draw Xs, in circles like doughnuts, for another minute (see Figure 1). This subtest is used to measure perceptual-motor competence. The Free Writing subtest participants are asked to write for ten minutes about the topic My Life, as it enables participants to produce writing material without too much effort (Barnett et al., 2007).

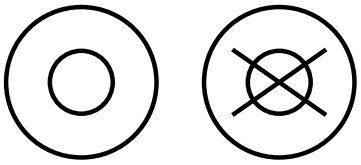

Figure 1. The Graphic Speed Test

In 2014, Precup and Barnett translated sections of the DASH manual and test instructions into Romanian. For the Copy Best and Copy Fast subtests, the pangram in the DASH was not substituted with another pangram, but with a sentence that contained most of the letters of the alphabet (He/She laid cucumbers and a kilogram of cheese in a basket). No apparent consultations with language experts were made to determine the sentence choice. Nor was a rationale for not substituting a pangram with another pangram provided. The sentence copying tasks (Copy Best and Copy Fast) were pilot tested on two children and two adults. It is not clear why two adults were asked to pilot the test when the test was intended for children. Neither was it clear why only two children piloted the test, as this figure falls below the

10% sample required for a pilot study (Connelly, 2008). For the Graphic Speed subtest, only the instructions were translated to Romanian. Participants were still requested to draw Xs, in circles like doughnuts (see Figure 1). For the Free Writing subtests, the prompts in the spider diagram were translated into Romanian. Furthermore, it is not clear why the researchers did not pilot the test in its entirety, since instructions, and the Free Writing prompts, had also been translated into Romanian.

In Precup and Barnett's (2014) main study, 100 children (49 boys and 51 girls), between the ages of 9 and 11, took part in the study. The validity of the adapted DASH was examined by testing differences in age and gender. Results of the study revealed that age influences writing performance, as for each task the older children wrote at least two words more. Results also showed that girls have write faster than boys. Therefore, the Romanian version of the DASH proved viable at differentiating between groups. However, other measures of reliability and validity (such as inter-rater agreement and discriminative validity) that were conducted in the UK to determine if the DASH is able to identify children with handwriting difficulties, were not carried out in the Romanian study. In fact, their study did not include students with learning difficulties (LD). Furthermore, writing speed norms for children between 9 and 11 were not established.

Development of the EMASH

The EMASH includes English and Maltese subsets. Whilst the English subsets are an adaptation of the DASH, the Maltese subsets were developed in parallel to the English subsets, for the purpose of this research. For the Copy Neatly subtest, participants are asked to copy a pangram neatly for two minutes. Since there was no existing pangram in Maltese, one was created for the purpose of this subtest with the assistance of the Maltese Department within the Faculty of Arts at the University of Malta. The Maltese pangram is "Kien liebes gozz ħwejjeġ u ċraret vera qodma u m'għażluhx fil-pront", containing 55 letters. The English pangram "A mad boxer shot a quick, gloved jab to the jaw of his dizzy opponent" paralleled the Maltese pangram as it is composed of 54 letters. A pangram was selected for the sentence copying task, because it may be used to identify any difficulties a student might have in forming the individual letters of the alphabet. For the Copy Quickly subtest, the same pangram is copied as fast as possible, but legibly, for the same length of time. An inability to speed up in the second subtest might indicate writing disorder such as dyslexia or dysgraphia. The Copy from the Board subtest is a novel subtest of the EMASH assessment battery. This far-point copying task simulates copying from the white board during lessons. The participants were asked to copy text, projected on a whiteboard, as fast as possible, but legibly, as they would be asked to do in a classroom setting. The text chosen for this task was one taken from the 2014 state annual past paper, pitched at Track 3[1] of the Year 10 Syllabus. For the pangram and copy from the Board task, a time mark (//) is inserted, even in mid-word, in order to keep track of changes in the speed of writing between the first minute and the following minute. No changes were made to the Graphic Speed test or the Free Writing subtest.

The EMASH administration procedures are similar to those used in the administration of the DASH, with some minor adaptations. For the Copy Neatly and Copy Quickly subtests, the pangram the students are asked to copy is printed on the first and second pages of the test, with lines below for the students to write on. Lined papers with the pangram printed on them were preferred to distributing this phrase on strips of paper as is recommended in the DASH manual. This made test administration quicker and more practical, since strips of paper did not have to be collected at the end of the testing session. Likewise, the spider diagram of the Free Writing subtest was not presented separately to the students, as is recommended in the DASH, but was provided to the students on the same test paper, with lines below to write on.

This study sought to determine face, content and discriminative validity. It also sought to determine the challenges the participants encounter during pilot testing, and the changes that needed to be made to the administration and content of the assessment battery.

1 Students in secondary schools may be following programmes of learning at different levels of difficulty in a number of subjects. These educational programmes may be referred to as Track 3, Track 2 and Track 1, Track 3 being the most demanding. Track 3 is the level Year ten students are expected to reach at this stage.

Participant Selection

Inclusion and Exclusion Criteria

Prior to the research, ethical approval (reference number 001/2017) was sought and obtained from the Faculty Research Ethics Committee (FREC) and the University Research Ethics Committee (UREC) at the University of Malta. Participants included 14–15-year-old students attending Year ten classes in state, church and independent schools. The ratio of the participants was divided to reflect the Maltese student population attending the three school systems: 10 (state): 3 (church): 1 (independent) respectively, to have a true representative sample of the Maltese student population. At the start of the research, an information letter and consent form was distributed to the parents of 105 students (48 boys and 57 girls). The parents of 88 students consented to their child's participation, of which only 70 students (34 boys and 36 girls), sat for both language versions of the test battery. The remaining 18 participants either did not assent to the test on the day, were absent on the day of testing, or missed one of the assessment sessions, and hence were excluded from the research study. The participants who took part in the pilot study were different from the participants who took part in the main study.

Participants were also selected according to their ability. High ability, average and low ability students state schools were selected based on their academic performance and determined by the grades attained in the core subjects (Mathematics, Maltese and English) in the half yearly[2] and yearly examinations. Participants in the girls' church school were selected according to their rank order in the yearly exam, obtained by summing up the core subjects. Participants in the independent school and the boys' church school were selected according to the rank order attained from assessments carried out throughout the year, including mid-term tests, apart from the half-yearly and yearly examinations. This rank order was determined by adding up the Global Mark of all subjects together. Information related to academic performance was provided by the assistant heads of schools. Students who attained high grades at their exams were classified as high ability students, and those who attained low grades, as low ability students. Eighteen students (26% of the sample population) were reported to have a learning difficulty (see Table 1). The diagnosis of a learning difficulty was previously established by an educational psychologist, who produced a report for the Statementing Moderating Panel to allocate a Learning Support Educator (LSE). Information about the participants' learning difficulties was gathered either from the assistant heads or the school's Inclusion Coordinators (INCOs), who were provided with an information letter explaining the purpose and nature of the research.

Table 1 – Number of Participants with grouped according to ability and School Type

	School Type					
	Girls' state	**Boys' state**	**Independent**	**Boys' church**	**Girls' church**	**Total**
Typically developing	15	7	10	10	10	52
Learning Difficulties	5	5	3	5	0	18
Total	20	12	13	15	10	70

The level of proficiency and achievement for a year ten class in language awareness and production (grammar), are the levels of proficiency students are expected to reach in English and Maltese in year ten, as described in the Learning Outcomes Framework of 2015 (Ministry for Education and Employment, n.d.-b). Some students were excluded from sitting for the Maltese test, after consultation with administrative staff or teachers, who, guided by academic performance, flagged those students who had not yet reached the desired level of proficiency in Maltese, by the time of the study.

2 The half yearly exam is the exam students used to sit for at around February, that is half way through the scholastic year. This exam has been removed in 2019, and replace with continuous assessment.

Test Administration

Data collection took place over the course of two weeks. The order of administration of the Maltese and English tests was reversed for half the sample. Thirty-seven students started with the English version of the test on the first day of testing and proceeded with the Maltese test the following week. The remaining 33 students completed the Maltese assessment first, followed by the English version during the second week (see Table 2). Alternating the order of test administration in this way reduces practice and order effects, and increases the validity of the test (Mifsud et al., 2004). The order of presentation of the individual subtests within each language version of the EMASH was also reversed for some participants as explained in Table 2.

Table 2 – Order of Administration of Each Subtest, Grouped by School Type

School type	Order of subtest administration for Maltese and English	First test administered	Second test administered
Independent	Copy Neatly Graphic Speed Test Free Writing Copy Quickly Copy from the Board	English	Maltese
Boys' state school	Copy Quickly Free Writing Copy Neatly Copy from the Board Graphic Speed Test	Maltese	English
Boys' church school	Free Writing Copy Quickly Graphic Speed Test Copy Neatly Copy from the Board	English	Maltese
Girls' state school	Copy Neatly Copy Quickly Copy from the Board Graphic Speed Test Free Writing	English	Maltese
Girls' church school	Graphic Speed Test Copy from the Board Copy Neatly Free Writing Copy Quickly	Maltese	English

Instructions were given in Maltese on the day of the Maltese tests, and in English when administering the English tests. When students found it difficult to understand the language of test instruction, the instructions were given in their primary language. Instructions were given verbally, and there was no limit to the number of times the instructions were imparted to the students. Group administration was conducted by using a classroom within the school during school hours. Before test administration, a verbal assent form was read out to the students. An emphasis was placed on confidentiality and the students' right to withdraw from the test anytime they wanted to. On the day of testing, six pages were given to each student.

Results

For the written subtests, the number of legible words was counted, and the number of words written per minute was calculated. For the Graphic Speed test, the number of correct crosses drawn in one minute was counted. Table 3 presents the students' average number of words written per minute in the English and Maltese assessment batteries in their entirety, grouped by ability, gender and school type.

Table 3 – Participant Performance According to Ability, Gender and School Type

School	Gender	Ability	Total English Score (WPM)	Total Maltese Score (WPM)	Graphic Speed Test (Correct no. of crosses)
Girls' state	Female	Typically developing	29.39	23.57	40.20
		Learning difficulties	23.01	18.52	35.60
Boys' state	Male	Typically developing	24.79	20.44	49.57
		Learning difficulties	19.11	14.32	49.00
Independent	Male	Typically developing	30.66	25.44	45.40
		Learning difficulties	31.41	21.29	45.50
	Female	Typically developing	33.94	29.17	41.20
		Learning difficulties	21.65	23.83	25.00
Boys' church	Male	Typically developing	25.98	20.99	45.80
		Learning difficulties	22.45	18.49	33.80
Girls' church	Female	Typically developing	26.44	21.22	33.90

Validity and Reliability Measures

For this study, the following measures of validity and reliability were conducted: face validity, content validity, discriminative validity and internal consistency reliability and were measured. Face validity analysed the extent to which the test was considered relevant by test takers (Holden, 2010), that is, if it seemed that it would measure what it was meant to measure. Content validity analysed the degree to which the test questions were relevant to the content they were meant to assess (Almanasreh et al., 2019). This type of validity relied on the expertise of professionals who were knowledgeable about the construct being measured (Clause, 2020). Discriminative validity exists when variables are weakly associated, or not associated with each other (Engellant et al., 2016). In this study, discriminative validity identified children with handwriting difficulties. Internal consistency reliability determined how the items in the test related to each other and to the test as a whole. It also reflected the redundancy of any items in the test (McCrae et al., 2011). This type of reliability was necessary since an overall writing speed score was computed for the assessment batteries in their entirety.

Face Validity

The class teachers in charge of the class on the day of the testing were informed about the study via an informative letter. Ten teachers were contacted, out of which six consented to participate in this stage of the research that sought to determine face validity. Prior to test administration, face-to-face interviews were held with these teachers during which the aim of the study was explained. The assessment batteries were shown to them, and the purpose of each subtest explained. Teachers were asked to provide feedback about how effective the test items were in measuring writing speed, by considering the following questions:

Is the test able to:

- determine letter formation?

- determine pen grip?
- determine a student's best handwriting?
- determine if a student is able to speed up their writing?
- identify writing difficulties due to motoric deficiencies (such as dyspraxia)?
- identify writing difficulties due to language disorders (such as dyslexia)?
- simulate writing in a classroom environment?
- simulate writing under examination conditions?

The teachers' responses were noted down. According to the teachers interviewed, the assessment batteries were appropriate, so no modifications to the test papers were made.

Content Validity

Five domain-related experts (such as linguists, occupational therapists and educational psychologists) were invited to offer their professional feedback on the content of the assessment battery in order to determine how well the test items cover the concepts they are supposed to measure. Feedback offered during personal discussions with these professionals determined content validity by considering the appropriateness of the test items, their duration, the overall duration of the test, the scoring procedure, the layout of the test paper, and the font style and font size.

A pangram is a sentence containing all the letters of the alphabet. For the purpose of this research, it was necessary to develop a pangram in Maltese. Translating the English pangram to Maltese would not have obtained the same end since the letters of the alphabet are different. The Maltese alphabet contains 30 letters, with the characters being mostly the same as in the Latin alphabet. Of these 30 letters, there are some diagraphs (such as "għ") and letters with diacritic marks (such as ġ) to indicate a different pronunciation. The expertise of two professors from the Maltese Department within the Faculty of Arts at the University of Malta, was sought with regards to the creation of a syntactically and grammatically correct Maltese pangram. At the start of the consultation process, three possible pangrams were proposed:

1. M'għażluhx fil-pront bil-gozz ħwejjeg veru ċari u qodma li kien liebes (57 letters). (He was not chosen at once because of the pile of faded and shabby clothes he was wearing)
2. Kien liebes gozz ħwejjeg u ċraret vera qodma u m'għażluhx fil-pront (55 letters). (He was wearing a pile of very old clothes and cloths and was not chosen promptly)
3. Hi sejħet u deheret tiekol cagħaq mixwi f'vażun bil-pizz ġo gaġġa. (53 letters). (She called and was seen eating roasted pebbles in a decorative vase inside a cage).

The first two options were put forward by one of the Maltese linguists (M, Mifsud, personal correspondence, March, 25, 2016). The third option, proposed by the researcher was discussed and later discarded after consultation with the second Maltese linguist (B, Micallef, personal correspondence, August 14, 2016). He pointed out that "sejħet" (called) is a transitive verb, which needs to be followed by a noun or pronoun e.g. "sejħet lil ħuha" (called her brother). In the end, the pangram "Kien liebes gozz ħwejjeg u ċraret vera qodma u m'għażluhx fil-pront" was selected as it is the shortest, grammitically correct phrase of all three that fits the criteria of a pangram.

The other nine professionals invited to provide their expert feedback on the content of the test items were contacted via email by an intermediary. Following consent to participate in this phase of the research, face-to-face consultations were conducted with each professional. Each meeting started with an overview of the EMASH and an explanation of the research aims. The feedback provided during the meetings included specific recommendations to modify the layout and administration procedures of the assessment battery.. These modifications are presented in Tables 4 and 5. Whilst Table 4 presents modifications made to the layout of the assessment, Table 5 addresses the scoring and administration following consultations.

Table 4 – Modifications made to the layout of the EMASH following consultation with Validators

Points discussed with validators	Prior to discussion with the validators	Following discussion with the validators	Reason
Graphic Speed: diameter of circles	Outer circle diameter: 2.3cm	Outer circle diameter: 1.95cm	To parallel the inner and outer circle diameters of the Graphic Speed test in the DASH
	Inner circle diameter: 1.7cm	Inner circle diameter: 1.45cm	
Line spacing	Line spacing: 1.6cm	Line spacing increased to 1.8cm	To parallel the line spacing used in the DASH and line spacing of foolscaps used in exams
Borders	Fancy borders were used	Plain borders were used	To keep the formating simple in order for the test paper to be dyslexia friendly
Free writing subtest title	The title of the English free writing subtest was My Life. The title of the Maltese writing subtest was Il-Familja Tieghi (My Family)	The title of the English free writing subtest remained the same. The title of the Maltese free writing subtest was changed to "Xi Nħobb Nagħmel" (What I like to Do)	The English and Maltese free writng tasks have different titles but similar prompts, so testers can choose to use one or both tests, as students would be writing similar content. If the tests are administered sufficieltly apart, different titles reduce the chances of students reproducing exactly the same content
Pangrams	The pangrams were written between the first two lines on the page	The pangrams were placed above the first line on the page	To parallel the layout of the pangrams presented in the DASH
Font style	The font style used was Andika	The font style was changed to Verdana	To match the font style used in national exams
Font size	The font size was 12	The font size was enlarged to 15	So that font sizes matched throughout the test paper

Table 5 – Modifications Made to the Administration of the EMASH Following Consultation with Validators

Points discussed with validators	Prior to discussion with the validators	Following discussion with the validators	Reason
Scoring of illegible words	Illegible words were to be counted separately only in the Free Writing subtest	Illegible words should be counted separately in all writing tasks, using two counts: one for legible words only, and one for legible and illegible words	Two counts for all writing tasks (one for legible words only, and one for legible and illegible words) allows a comparison between the counts
Copy from the Board: subtest duration	Copy from the Board subtest duration: 1 minute	Copy from the Board subtest duration: 2 minutes	To allow participants enough time to visualize, memorise and write the text
Headings and instructions	Instructions provided at the start of each subtest	Remove all instructions from the record sheet	To parallel the layout used in the DASH

Discriminative Validity

In this study, discriminative validity examines the ability of the tool to discriminate between groups of participants that are expected to perform differently at the assessment. Discriminative validity was established by administering the EMASH to a groups of students of different ability (see Table 6). Students with learning difficulties would be expected to have handwriting difficulties when compared to a typically developing group of students (Barnett et al., 2007).

Table 6 – Participants, Grouped by Ability

Ability	Sample size	Percent
Typically developing	52	31.7
Dyslexia	5	3.0
Dyspraxia	1	0.6
ADHD/ADD	1	0.6
Learning difficulties	11	6.7
Total	70	42.7

Descriptive statistics of the writing speed performance of students of different ability (see Table 7), show that, on average, students with learning difficulties wrote less Words Per Minute (WPM) in both English and Maltese, than typically developing students. Table 8 shows that with writing difficulties (five students with traits of dyslexia, and one with traits of dysypraxia), when compared to typically developing students.

Table 7 – Mean Writing Speed Performance of Students with Learning Difficulties

Ability		Total English Score	Total Maltese Score
Typically developing	Mean	28.11	22.92
	Sample size	52	52
Learning difficulties	Mean	22.63	17.94
	Sample size	18	18

Table 8 – Mean Writing Speed Performance of Students with Dyslexia and Dyspraxia

Learning difficulties		Total English Score	Total Maltese Score
Typically developing	Mean	**28.11**	**22.92**
	Sample size	**52**	**52**
Dyslexia and dyspraxia	Mean	**21.46**	**14.79**
	Sample size	**6**	**6**

Table 9 – ANOVA findings of English and Maltese writing speed performance, grouped by Ability

		Sum of Squares	df	Mean Square	F	Sig.
Total English Score	Between Groups	401.388	1	401.388	13.448	0.001
	Within Groups	2029.651	68	29.848		
	Total	2431.039	69			
Total Maltese Score	Between Groups	331.108	1	331.108	13.956	0.000
	Within Groups	1613.298WW	68	23.725		
	Total	1944.406	69			

Internal Consistency Reliability

This measure of reliability was determined via the Cronbach's Alpha test. Whilst an Alpha value of 0.70 is acceptable, a value of 0.80 or greater is preferred (Cortina, 1993). The Cronbach's Alpha for the five English and five Maltese subtests resulted in 0.733 and 0.636 respectively. The inter-item correlation tables showed that test items are positively correlated, for both the English (Table 10) and Maltese (Table 11) test batteries.

Table 10 – Inter-item Correlations for English Subtests

	English Copy Neatly	English Copy Quickly	English Copy from Board	English Graphic Speed Test	English Free Writing
English Copy Neatly	1.000	0.863	0.715	0.242	0.697
English Copy Quickly	0.863	1.000	0.776	0.216	0.726
English Copy from Board	0.715	0.776	1.000	0.181	0.657
English Graphic Speed Test	0.242	0.216	0.181	1.000	0.155
English Free Writing	0.697	0.726	0.657	0.155	1.000

Table 11 – Inter-item Correlations for Maltese Subtests

	Maltese Copy Neatly	Maltese Copy Quickly	Maltese Copy from Board	Maltese Graphic Speed Test	Maltese Free Writing
Maltese Copy Neatly	1.000	0.861	0.720	0.231	0.474
Maltese Copy Quickly	0.861	1.000	0.739	0.225	0.593
Maltese Copy from Board	0.720	0.739	1.000	0.108	0.386
Maltese Graphic Speed Test	0.231	0.225	0.108	1.000	0.132
Maltese Free Writing	0.474	0.593	0.386	0.132	1.000

The weaker inter-item correlations were associated with the Graphic Speed tests for both Maltese and English. This showed that the graphic speed test taps into a different set of sub skills (Barnett et al., 2007) other than writing speed. In fact graphic speed measures perceptual-motor competence, that results from "the interaction between sensory perception and motor actions" (Frost et al., 2001, p. 164). By removing the Graphic Speed subtest from the analysis, the Cronbach's Alpha increases to 0.914 in English and 0.848 in Maltese (see Tables 12 and 13 respectively).

Table 12 – Cronbach's Alpha value if Each Subtest of the English Test is Removed

English subtests	Cronbach's Alpha if item deleted
English Copy Neatly	0.615
English Copy Quickly	0.599
English Copy from Board	0.666
English Graphic Speed Test	0.914
English Free Writing	0.660

Table 13 – Cronbach's Alpha Value if Each Subtest of the Maltese test is Removed from the analysis

Maltese Subtests	Cronbach's Alpha if item deleted
Maltese Copy Neatly	0.504
Maltese Copy Quickly	0.506
Maltese Copy from Board	0.526
Maltese Graphic Speed Test	0.848
Maltese Free Writing	0.588

Discussion

Findings of the various measures conducted to ensure the validity and reliability of the EMASH indicate that this novel assessment battery can be considered a viable tool to identify children experiencing difficulties with writing speed. The test underwent various measures of scrutiny and the necessary modifications were made to improve its viability. These include measuring internal consistency and making the necessary changes to the tool following consultations with experts and taking heed of participant concerns during test administration.

The English speaking participants attending the Independent school expressed concern with writing at length in Maltese. To assist English speaking participants with the Maltese free-writing task, more prompts were added to the spider diagram, to give them more ideas to write about in Maltese. These changes were reflected in the English spider diagram. "Food" was added to the spider diagram, as well as "fashion" and "computer games". To make the test more culturally acceptable, "feasts" was added to the spider diagram, and "weekends" replaced "clubs". The size of the spider diagram was itself increased to give the students more space for writing (see Figure 2 for English and Figure 3 for Maltese).

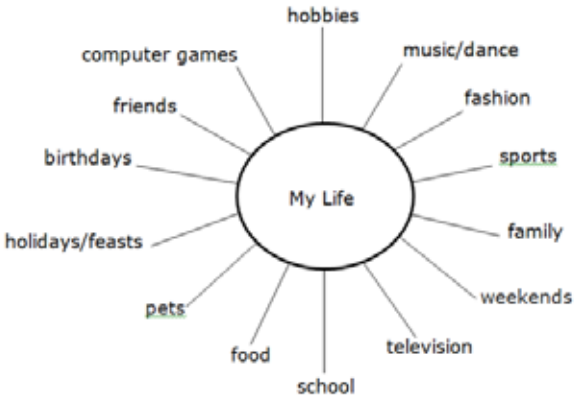

Figure 2: The Modified Spider Diagram of the English Free Writing Subtest Post Pilot Testing

Figure 3: The Modified Spider Diagram of the Maltese Free Writing Subtest Post Pilot Testing

Age was replaced with Date of Birth to distinguish between the students born between January and June, and those born between July and December. This is because research shows that the youngest members of each cohort (even 14 and 15-year-olds) score lower than the oldest members (Bedard & Dhuey, 2006). During testing, participants were seen to flip through the pages to find the exercises they had to work on, since the order of test administration was reversed. As a result, a second test paper was created that alternated a fast paced subtest with a slow paced one. The decision to modify the test paper in this way was taken following comments made by students who expressed fatigue when two fast paced activities followed in sequence. The second test paper presented, for both the English and Maltese tests, alternated fast paced subtests with slow paced ones, in this order:

- Copy from the Board subtest (fast paced)
- Graphic Speed test
- Copy Neatly subtest (slow paced)
- Copy Quickly subtest (fast paced)
- Free Writing subtest (slow paced)

It was difficult for the researcher to spot some of the time marks// on the test papers. Hence a recommendation was added in the test manual for participants to draw clear and well visible time marks on their test papers. As some participants used pencils during the test, instructions to use only black or blue ink (but no pencils), were again added to the test manual to mirror the guidelines in the 15+ national exams (MATSEC Support Unit, 2017).

During testing, a few students did not lift their pens when drawing crosses for the Graphic Speed Test subtest, making these type of crosseswhich are considered invalid. Hence instructions were added to the test manual instructing participants to lift their pens when drawing the two lines of the cross.

Conclusion

Research was carried out to measure the face and content validity of the EMASH. The teachers who were asked to give a non-scientific opinion about the viability of the EMASH to measure writing speed and diagnose writing difficulties, all agreed that the test items met this aim. The professionals contacted for content validity, examined the appropriateness of the test items in terms of content, the duration of the subtests, the overall duration of the test battery, scoring procedure and the format of the assessment, including font style and size. One important recommendation put forward by these professionals was the duration of the copying subtests. It was recommended for the near point and far point copying tasks to be two minutes long, to give participants time to read the text, memorise this text, and return to the test paper to write it down. The literature shows that there is no hard and fast rule as to what the length of a copying task has to be. In some studies this was two minutes long (Phelps et al., 1985), in others three minutes (Wallen et al., 1996), and yet in others, it was nine minutes long (O'Mahony et al., 2008). These varieties in testing duration make it difficult to compare writing speeds across nationalities, to determine if any nation is faster than another.

The EMASH proved to be a reliable tool to discriminate between groups. In this study, the EMASH identified those students with handwriting difficulties. In the literature (Cardoso et al., 2014; Precup & Barnett, 2014), participants with learning difficulties were not included in the sample. Discriminative validity was obtained by discriminating between age and gender (Precup & Barnett, 2014). In this study however, discriminative validity was obtained by differentiating between age, gender and ability.

Limitations and Recommendations

Other forms of reliability measures, such as inter-rater reliability or test-retest reliability, were omitted because of time constraints, since the pilot test was administered during the third term of the scholastic year. Testing the

children earlier on in the academic year would allow more time to conduct other measures of reliability.

In this study, participants were selected by ability according to their academic performance. This was possible due to the small sample size. However, this is not practical with a large sample size. Given that students attending mainstream schools are of mixed ability, it is advisable to include as many students as possible when conducting studies involving larger populations. This will provide a better reflections of the school population. Academic performance coupled with testing of language abilities, will allow differentiating between groups of different ability.

School type was included in this study as a variable for comparison between the three school systems. Unlike Church and Independent schools, State schools in Malta are located in each village and allow for comparisons between state schools located in different geographical regions. A similar comparison cannot be made with students attending Church and Independent schools. Future studies should therefore include demography to allow for direct comparisons to be made between students residing in the different geographical regions of Malta attending the three school systems. This will permit comparisions to be made between students residing in the different geographical regions of Malta.

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Conflicts of Interest

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Research Paper

Midwives' Perspectives on Perineal Suturing in Midwifery Practice

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Abstract. Perineal suturing is the repair of perineal trauma which is caused by a tear or an episiotomy. This small-scale quantitative research project aimed to investigate midwives' perspectives on perineal suturing in midwifery practice. This was achieved through the following objectives: to identify effective ways of teaching and supporting midwives in implementing perineal suturing as a midwifery skill and to identify the barriers and facilitators associated with implementing perineal suturing in local midwifery practice. A total of 40 midwives, recruited by convenience sampling, were selected from a labour ward of a local general hospital. A total of 35 questionnaires were returned resulting in an 87.5% response rate. Analysis of closed-ended questions was carried out manually using simple descriptive statistics and analysis of open-ended questions was carried out using content analysis. Results suggested that midwives believe that perineal suturing should be carried out by midwives who should be the main professional to suture first- and second-degree tears. This would contribute to providing continuity of care to intrapartum women and hence was viewed as imperative in facilitating the implementation of suturing of the perineum by midwives. Establishing perineal suturing by midwives within the local context would facilitate time management concerning care following the birth. Findings suggested that regular training on perineal repair would help to support the practice of the skill. Midwives also claimed that obstetric- led care and a lack of trust between healthcare professionals are barriers whilst the provision of training is seen as a facilitator in promoting this midwifery skill. In conclusion, this study recommends the commencement of midwives repairing first-degree and second-degree tears as part of their practice with a policy that supports this. Moreover, further studies using a larger, randomly selected sample of midwives is also recommended so that the findings can be generalized. Recommendations for education include the importance of regular perineal repair courses which should be offered as a form of Continued Professional Development (CPD) to enhance the knowledge on the subject. This study was the first local study investigating midwives' perspectives on perineal suturing in midwifery practice.

Keywords: midwives, perineal suturing, perineal repair, midwifery practice, midwives and suturing.

1. Introduction

Perineal suturing is a skill which refers to the repair of perineal trauma which is brought about during the vaginal birth of a baby. Perineal trauma is defined by the National Institute for Health and Care Excellence (NICE) (2017) as being caused by a tear or an episiotomy and it can be classified into four degrees: first-degree, second-degree, third-degree or fourth-degree tears. Midwives believe that they should be in charge of repairing first- and second-degree tears together with episiotomies as this is part of their professional role (Selo-Ojeme et al., 2015; Hajjaj, 2017). Training programmes can increase midwives' awareness on the classification of the types of tears, on the knowledge of repairing and increase

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midwives' competence in this regard (Wilson, 2011; Selo-Ojeme et al., 2009; Zimmo et al., 2017). Repairing perinea under supervision and hands-on practice, together with regular training, help in enhancing the practice of perineal repair (Selo-Ojeme et al., 2009; Zimmo et al., 2017). Dahlen and Homer (2008) claim that five to nine repairs should be conducted under supervision before midwives can practise independently (Dahlen & Homer, 2008). Student midwives should have the opportunity for hands-on practice of perineal suturing during their training since this would instil in them a sense that this skill is, in fact, a midwifery skill and not one which is achieved post-registration (Dahlen & Homer, 2008). It is also suggested that following a training course, there is the potential that confidence in educating other peers in the practice of perineal suturing increases (Selo-Ojeme et al., 2009).

The probability for midwives to practice perineal repair is increased in units which practice continuity of care and carer (Dahlen & Homer, 2008). It is suggested that even though both midwifery-led and obstetric-led care are considered safe for the woman, midwifery-led care results in fewer interventions for clients (Begley et al., 2011). Hence, this shows that continuity of care and midwifery-led care can be seen as beneficial to women (Dahlen & Homer, 2008; Begley et al., 2011). Moreover, the NICE guidelines for intrapartum care (2017) suggest that perineal repair should be performed quickly after delivery to minimise risks of infection and blood loss and this can be achieved when the delivering midwife sutures her client without having to wait for the obstetrician.

Some midwives, however, worry about doing a good job at perineal suturing which in turn acts as a barrier to the implementation of this skill. Should- follow up care by the same midwife be in place, this worry would be decreased, as would the legal implications associated with this skill (Dahlen & Homer, 2008). Moreover, the lack of timely support given to midwives when they are on duty and lack of assistance when carrying out perineal repair has also been identified as a barrier (Hunter & Bick, 2019). Behruzi et al. (2010) argued that if midwives are not performing perineal suturing, this creates a barrier towards humanising childbirth.

Perineal repair is recognised as a skill that many midwives around the world currently practice (Steen & Wray, 2014). Locally, however, perineal repair is carried out exclusively by doctors, even though perineal repair is taught to student midwives in their undergraduate course of studies. Studies exploring midwives' experiences or views on perineal repair have all been conducted in countries where perineal repair is carried out by midwives with no such studies having been conducted in Malta (Dahlen & Homer, 2008; Hunter & Bick, 2019; Selo-Ojeme et al., 2015). Therefore, taking into account this gap in the literature, the present quantitative research aimed to investigate midwives' perspectives on perineal suturing in local midwifery practice. This was achieved through the following objectives: to identify effective ways of teaching and supporting midwives in implementing perineal suturing as a midwifery skill and to identify barriers and facilitators in implementing perineal suturing in midwifery practice.

2. Methodology

A small-scale quantitative research study was conducted by firstly looking at the literature available on the topic. A thorough search using electronic databases with a set of keywords was conducted to explore the literature related to this topic area. The search engines used were; Google Scholar and HyDi. Databases used included EBSCO and PubMed. Following a thorough review of the literature and in the absence of a gold-standard questionnaire, a self-designed, self-completion questionnaire was devised comprising a total of 20 questions including both open- and closed-ended questions for use in this study.

A pilot study was performed to test for the feasibility of the designed questionnaire with four participants. Pilot participants were provided with an evaluation sheet to provide feedback on the questions being asked. Based on the evaluation of responses, two of the questions were removed as these were deemed to be repeating previous questions by the pilot participants, resulting in an 18-item questionnaire. Additionally, pilot participants found no problem with the answer guide of each question and did not wish to add any further questions. The data generated from the pilot work were not included in the main study.

Between December 2019 and January 2020, a total of 40 participants were conveniently recruited from a labour ward of a local general hospital in Malta to participate in this study. Midwives were recruited on the premise that they worked at the labour ward at the time of data collection and if they agreed to participate in this research. The years of experience of working at this ward ranged from 6 months to 40 years. An intermediary distributed one blank envelope, the tool and one information letter to each conveniently chosen potential participant. The intermediary also placed a sealed box on

the midwives' station in which participating midwives inserted the completed questionnaires. The sealed box was then collected from the intermediary by the primary researcher.

Data were then analysed according to the type of question being asked. Data gathered from closed-ended questions were counted, grouped and analysed manually using simple descriptive statistics. These data were then represented using bar graphs and pie charts. Open-ended questions were analysed using content analysis by placing common units under the same category with the use of tabulations and associated frequencies (Krippendorff, 2004).

Ethical approval was sought and granted by the Faculty of Health Sciences Research Ethics Committee (FREC) (Ref No: 1254: 27032019) after the required permissions were gained from institutional personnel. Confidentiality and anonymity were protected as the data collection process made sure that the researchers did not have any contact with the participants and since participants were instructed to abstain from writing their name or any information by which they could be identified when filling out the questionnaire. Additionally, analysed data were stored in a password protected computer on encrypted files and hard copies of the questionnaires were stored in a locked cupboard that only the researchers had access to.

3. Results

In total, 35 questionnaires were returned, yielding an 87.5% response rate. The majority of midwives (n=34; 97.14%) agreed that perineal repair should be carried out by midwives. Furthermore, most of these midwives, answered that midwives should repair up to second-degree tears (n=30; 88.24%). Additionally, the results obtained showed that all participating midwives (n=35; 100%) agreed that regular courses should be carried out to improve and provide further updates on this practice. The findings revealed how 22 midwives (62.86%) had in fact attended perineal repair training. Twenty-five respondents answered an open-ended question relating to the type of training they received; twelve (48%) indicated that they had received both practice and theoretical training. This was then followed by training which six participants claimed to have received as a student midwife (24%). Five midwives (20%) received training in the form of a Continued Professional Development (CPD) course. Additionally, two midwives (8%) indicated that they received training overseas.

The majority of midwives participating in this research (n= 33; 94.29%), agreed that student midwives should be allowed to learn about the subject while undergoing their undergraduate training. Additionally, most midwives (n=23; 65.72%) collectively agreed that student midwives should be allowed to practice perineal suturing under supervision during their undergraduate course. When asked about the potential of doing perineal repair courses for student midwives and qualified midwives together with medical students and doctors respectively, most midwives (n=20; 57.14%) supported this.

Midwives also supported the idea of performing perineal repair themselves as this was deemed to promote continuity of care to the client (n=31; 88.57%). Additionally, many participants (n=27; 77.14%) believed that midwives were capable of suturing and many participants (n=27; 77.14%) also believed that as midwives, perineal suturing should be performed by them as this could result in less time spent waiting for doctors. Most midwives (n=23; 65.71%) viewed perineal suturing as one of their professional roles.

Another response gathered was about how many repairs should midwives conduct under supervision before being recognised as competent. Some midwives (n=13; 34.22%) stated that they should be supervised between 6 to 10 times. Other midwives (n=12; 31.58%) suggested that evaluation should be based on the level of competency achieved as this varies from one professional to another. When asked if they felt they would benefit from further education on this topic, most midwives replied in the affirmative (n=32; 91.43%).

Results indicated that while some midwives (n=15; 42.86%) would worry about the legal implications associated with perineal suturing, others (n=15; 42.86%) responded that they would not worry about this. Results indicated how some midwives (n=17; 48.57%) felt that they worried about not doing a good job with perineal suturing and potentially leaving an impact on women. Thirty-one midwives answered questions related to barriers in the implementation of this skill. The most perceived barrier to the implementation of perineal suturing carried out by midwives was identified to be obstetric-led care and the lack of trust between doctors and midwives (n=16; 51.61%). This was followed by the unwillingness of staff to practice this skill (n=10; 32.26%).

On the other hand, out of 14 responses gathered, the most perceived facilitator to the implementation of this practice by midwives was seen to be the provision of training (n=6; 42.85%). This was then followed by healthcare professionals who promote this practice as a midwifery skill (n=3; 21.43%) and by benefits obtained from midwifery-led care and continuity of care (n=3; 21.43%).

4. Discussion

Most midwives partaking in this study (n=34; 97.14%), expressed that perineal repair should be performed by themselves as professionals. Locally, perineal repair is performed solely by doctors. In congruence with these current findings, results by Selo-Ojeme et al. (2015), showed how most midwives partaking in their study (n=516; 87.2%) felt that they should be the ones repairing second-degree tears and episiotomies. This study was conducted in the United Kingdom (UK) where midwives practice perineal suturing as opposed to this current research. The study by Selo-Ojeme et al. (2015), randomly selected a total of 800 patricipants. However, 592 questionnaires were received, yielding a response rate of 74%. Moreover, our findings suggest that most local midwives participating in our study (n=30; 88.24%) are aware of their professional role in relation to suturing. In fact, in the present study, midwives (n=23; 65.71%) believed that perineal suturing is one of the roles of the midwife.

Local midwives believed that being able to suture women's perinea would enhance continuity of care (n=31; 88.57%). This is congruent to the quantitative results of Dahlen and Homer (2008), whereby participants felt that providing continuity of care is the main reason that this practice should be conducted by midwives. Some midwives (n=27, 77.14%) in the present research agreed that they should be able to suture perinea since this would lead to less time waiting for doctors. Such delays may result in an increase in blood loss and increases the risk of acquiring an infection (NICE, 2017).

Most midwives participating in this study (n=22; 62.86%) received training on perineal repair. Some of these participants claimed that they had attended more than one type of training. Attending training is suggested to enhance confidence and competence in midwives (Wilson, 2012). Congruently, Zimmo et al., (2017) suggested that when an educational programme is carried out, there is a higher awareness in identifying and classifying tears according to their degree and increases knowledge on repairing. This adds on to what has been found in this present study where most midwives (n=32; 91.43%) felt that they would benefit from further education on perineal suturing. Another finding from this current study was that all midwives (n=35; 100%) manifested the desire that perineal repair courses should be provided regularly to enhance and give further updates on this practice. Regular training is required to maintain the acquired knowledge to help practitioners become more competent in their practice (Zimmo et al., 2017). Additionally, NICE (2017), suggests that all professionals who perform perineal repair should attend courses that tackle the assessment and repair of trauma while making sure that the skills acquired are sustained.

Hands-on training and repairing tears under supervision is imperative in teaching perineal repair (Selo-Ojeme et al., 2009). When asked to express freely their thoughts, 13 midwives (n=13; 34.22%) hinted that they should carry out perineal repair between 6 to 10 times under supervision. This is similar to the finding by Dahlen and Homer (2008), who suggested that most midwives agreed that they should be supervised while conducting between five to nine repairs. However, an interesting finding in the present study is that midwives (n=12; 31.58%) also suggested that evaluation on the level of competence should be based on the individual. This shows that midwives feel the need to be recognised as competent first individually rather than having a fixed set of supervised repairs.

In the current survey, most midwives (n=33; 94.29%) agreed that student midwives are being taught about perineal suturing as part of their undergraduate studies. However, when asked whether they thought student midwives should practice the skill under supervision, only 23 midwives (n=23; 65.72%) agreed that this opportunity should be given to them. This has implications for midwives' supervisory role with student midwives. This opportunity enables the practice to be viewed as a midwifery skill and not as an additional part of the midwifery profession (Dahlen and Homer, 2008). Another finding from the current research was that midwives (n=20; 57.14%) agreed that student midwives and qualified midwives should attend perineal repair courses together with medical students and doctors respectively. There was a strong agreement for health professionals involved in the care of laboring women to undertake such courses together and it has also been

suggested that this may lead to more collaboration (Dahlen & Homer, 2008).

This study identified that half of the participants (n=15; 42.86%) worried about legal implications brought about by practising perineal repair. This worry may be associated with fear of litigation or lack of competence in carrying out this skill. Therefore, legal implications may be considered as a barrier to the implementation of this skill as part of midwifery practice. However, the provision of education and training regarding this practice may aid in lessening this worry amongst midwives (Dahlen & Homer, 2008).

Findings indicated that obstetric-led care and lack of trust between doctors and midwives acted as a barrier for the implementation of this practice. In a similar setting, where doctors carry out perineal suturing in Japan, the fact that midwives do not have the authority to practice this skill was seen as a factor in dehumanising childbirth (Behruzi et al, 2010). Moreover, local midwives attributed midwifery-led care, and continuity of care as facilitators for perineal suturing to be carried out by midwives. Moreover, it was suggested that both midwifery-led and obstetric-led care, were seen as a safe practice for the client. However, with midwifery-led care, there were potentially fewer interventions carried out on the mothers during the intrapartum period (Begley et al., 2011). Furthermore, the provision of follow-up care after repair by the same midwife can be of benefit to both the woman and the midwife as the perineum can be observed and healing assessed, which can reduce their concerns about whether or not they did a good job with perineal suturing (Dahlen & Homer, 2008). In the current study, some midwives (n=17; 48.57%) expressed that they would worry about whether they did a good job with perineal suturing, possibly leaving an impact on the woman's outcome post-birth which is similar to Dahlen and Homer's (2008) findings. These findings are similar, as they both illustrated that midwives felt that they worry about this phenomenon and they feel the need to provide good care without harming their clients. It is suggested that the same midwife who had previously conducted perineal suturing on the patient, should continue to follow the same patient so that the midwife can gain feedback which can help to reduce the worry of whether they did a good job with perineal suturing (Dahlen & Homer, 2008). Also, it was recommended that such follow up of patients should be part of the training given in perineal repair (Dahlen & Homer, 2008). Therefore, this shows the importance of having continuity of care and carer as this may achieve better outcomes for the woman and the midwife as following up the woman throughout, might help the woman to feel more comfortable in all aspects, including perineal repair.

Some local midwives (n=10; 32.26%) agreed that their colleagues might be unwilling to practise this skill and that, as a result, this could be a barrier to promoting education and acceptance of this practice as a midwifery skill. It was also suggested that support received from colleagues or the lack of it had an impact on midwives in their practice of perineal repair (Hunter & Bick, 2019). This is due to midwives appreciating having a senior mentor who acts as a role model and helps to increase both their confidence and their competence in the skill (Hunter & Bick, 2019).

5. Conclusion

The main findings from this study indicate that most local midwives feel that perineal repair should be carried out by themselves, and this includes repairing first- and second-degree tears. Findings revealed that providing continuity of care and carer should be implemented as this would facilitate the practice of this midwifery skill. In turn, this would benefit women as suturing would get done quicker, hence, decreasing the risks of blood loss and infection. If midwives are performing an episiotomy, which is a surgical incision of the perineum and the posterior vaginal wall, it would be more practical and beneficial for the midwife to suture such tears. This study suggests that local midwives would benefit from further education and support on perineal suturing. Additionally, midwives felt that perineal repair should continue to be taught to student midwives as part of their undergraduate course. Legal issues related to perineal repair seemed to worry some midwives and this reinforces the need for training and support in this regard. Additionally, the most cited barrier to the implementation of perineal repair in midwifery practice was seen to be obstetric-led care and lack of trust between professionals that work directly with women in labor. On the other hand, the most cited promoter of this skill, as expressed by midwives, was the provision of training opportunities in this regard.

5.1. Recommendations for practice, management, research and education

This study recommends the implementation of perineal suturing (first-and second-degree tears) by midwives to support continuity of care and carer. Perineal repair courses should continue to be provided regularly for qualified midwives as CPD courses to enhance their knowledge and provide regular updates on the practice of perineal repair. Ideally, all midwives should take up this opportunity to increase their knowledge and enhance their skill. Student midwives should also continue to be taught on perineal repair as part of their undergraduate course including supervised hands-on training on a labor ward setting. Perineal repair courses could be held together with other members of the multidisciplinary team. Midwifery managers should encourage this skill amongst their staff and facilitate training opportunities in this regard. Further studies about perineal repair could be conducted using a larger, randomly selected sample from all areas of midwifery practice to attain results that can be generalised. Understanding women's experiences of perineal suturing will help to shed light on this phenomenon and help to improve intrapartum care.

5.2. Strengths and limitations

The principal strength of this research is the 87.5% (n=35) response rate obtained. In all, 40 participants were invited to participate from a total of 43 midwives working at labor ward at a main state hospital at the time of data collection. Additionally, this is the first study conducted locally on midwives' perspectives on perineal suturing in midwifery practice and hence, fills this local research gap. The findings of this study add to the body of knowledge available around this topic. Content validity and face validity of the research tool was ensured through regular meetings with experts in the field, relevant literature was used in its construction. Additionally, the pilot work and the use of open-ended questions and closed-ended questions can be considered as having added strength to the current research study as it helped to create a balance amongst the questions being asked (Rees, 2011).

This study did not come without limitations. Its small sample size contributes greatly to this and limits the generalisability of the findings obtained. Moreover, using a convenience sample can be considered as a limitation as it is based on convenience and hence, the target population might have not been represented (Cluett, 2000). Since reliability testing via a test re-test was not carried out further limits this study. Furthermore, a gold-standard questionnaire was not available in the literature and hence a newly designed questionnaire needed to be created for the sole purpose of this small-scale study.

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Conflict of interest

The authors report no conflicts of interest.

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Commentary

COVID-19 as an occupational disease: enhancing social protection for at risk workers in Malta

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Abstract: COVID-19 has had a great impact upon workers, particularly those working in healthcare. A relevant consideration, which is the focus of this paper, is the social protections afforded to such workers. Whilst the state introduced measures that provide affected workers with social protection, the introduced measures do not adequately cover all situations, such as when workers suffer from Long-Covid or experience other health-related complications. This commentary argues that such instances could be remedied by recognising COVID-19 as an occupational disease, thus providing affected workers with access to social measures such as Injury Leave. The paper also acknowledges that determining whether COVID-19 was occupationally transmitted or not can often be challenging. It is thus proposed that COVID-19 is automatically recognised as an occupational disease in groups of workers who are disproportionally at risk of this disease. In particular, priority should be given to healthcare workers and those working within healthcare settings.

Keywords: COVID-19; healthcare workers; occupational disease; sick leave; social protection

Commentary

COVID-19 has impacted upon almost every facet of individuals' way of life. Work tasks, social interactions, family life, everyday tasks and education have all been affected. Policy makers have been faced with the challenge of having to develop a multitude of measures to diminish the spread of disease (Cuschieri et al., 2020) whilst also attempting to stimulate the economy, protect jobs and save enterprises (Fiorini, 2021). The current paper, however, questions if more can be done to support workers who suffer from COVID-19, in particular healthcare workers and others working within healthcare settings.

No occupational groups have faced the health implications of COVID-19 to the same degree as those working within healthcare. Whereas other occupational groups make regular contact with potentially infected individuals, various healthcare workers are involved in testing and determining who is COVID-19 positive, caring for the ill, treating those with long-term repercussions of the illness, and coping with distressing situations. In fact, Mutambudzi et al. (2021) found that healthcare workers are seven times more likely to experience severe COVID-19 than other 'non-essential' workers. More specifically, medical support staff, including nursing assistants and hospital porters, were reported to have the highest risk of severe COVID-19, followed by associate health professionals, a group that included nurses and paramedics, and healthcare professionals, which included doctors and pharmacists.

Faced with the novel situation of ordering vast numbers of people to quarantine, a new form of leave, termed quarantine leave, was introduced into Maltese legislation (Minimum Special Leave Entitlement Regulations, 2008, as updated by Legal notice 62 of 2020). Quarantine leave provides all workers with leave without loss of wages for the duration of a quarantine order. Furthermore, in their guidance to employers, the

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Department for Industrial and Employment Relations (DIER) stated that those who test positive for COVID-19, including those who were previously on quarantine leave, should make use of sick leave (DIER, 2020).

On the face of it, these measures provide workers, including those working in healthcare settings, with a good level of income protection and the opportunity to recover, if needed. However, several situations that may impact workers fall outside the scope of sick leave and quarantine leave. These include situations where: (i) COVID-19 may exceed a workers' sick leave cover (which may be of particular relevance to those working outside of government employment); (ii) workers develop chronic symptoms which persist beyond the period where workers are COVID-19 positive and require to quarantine (often termed Long Covid); and (iii) workers may develop other medical conditions secondary to COVID-19 in the future. Furthermore, should a worker die of COVID-19, the highlighted measures provide no support for their dependents. These considerations do appear to be valid; UK statistics highlight that around 1 in 10 of COVID-19 cases exhibited symptoms for a period of 12 weeks or longer, whereas initial UK data indicates that COVID-19 hospitalisation may be linked to subsequent adverse health events (Office for National Statistics, 2020). In fact, in those admitted to hospital with COVID-19, the chance of complications and reduced functional abilities are high, including in previously healthy young individuals (Drake et al., 2021).

Malta, like other EU countries, has measures in place for diseases and injuries suffered due to one's work. Injury leave provides workers with up to a year of leave on full pay, less the amount of any injury benefit the employee may be entitled to in terms of the Social Security Act, when suffering from an injury or a disease attributed to one's work (Minimum Special Leave Entitlement Regulations, 2008; Social Security Act, 1987). A Wage Regulation Order (WRO) for Hospitals and Clinics (1977) goes further by highlighting that workers in these settings who contract a disease while on duty, are entitled to leave on full injury pay, less the full amount of the benefit provided by the Social Security Act, for the duration of the disease.

Furthermore, where occupational diseases result in permanent loss of physical or mental abilities, the Social Security Act (1987) has provisions for entitled workers including an 'Injury Grant' or 'Injury Pension' – this depends on the degree of impairment. In those instances, where Individuals are determined to have a 90% impairment or more, they are instead granted an Invalidity Pension. Malta also has measures in place to support dependants of those who pass away as a result of an occupational disease or injury; surviving spouses of those who die as a result of such a disease may be entitled to a pension, the amount of which depends on whether the surviving spouse has the care and custody of children. Additionally, pensions are available for parents who are on pensions or for parents who are incapable of self-support, when the person maintaining them dies as a result of an occupational disease.

Two key considerations which can influence workers' eligibility for such social measures merit discussion. The first regards the disease in question. The Social Security Act (1987) highlights that benefits are payable when workers suffer from a formally recognised occupational disease. These are listed on the fourth schedule of this same Act; COVID-19 is not formally listed as an occupational disease in this schedule. The Act, however, contains a clause whereby the Director of Social Services may entertain submissions from individuals who have developed diseases that are not listed in the schedule but are believed to have developed as a result of their work. The WRO for those working in hospitals and clinics does not exclude coverage on the basis of the type of disease in question. A second consideration involves determining whether the disease in question was in fact contracted during the discharge of a workers' duties. A worker's eligibility for such occupational support measures would depend on the decision of a Medical Board organised by the Department of Social Security.

The International Labour Organisation (ILO) (2009) defines an occupational disease as one 'contracted as a result of an exposure to risk factors arising from work activity.' COVID-19 has the potential of being an occupational disease as it is transmitted between workers or between workers and clients (e.g., patients). Problematically for those workers who suffer from COVID-19 and wish to make use of the aforementioned benefits, proving that it has been contracted during one's work duties can be challenging. Whereas in some cases workplace transmission may be identified, in other cases the source of the disease may be difficult to determine.

As is the case in Malta, EU countries provide support for those who suffer from an occupational disease. European and international bodies such as the European Trade Union Institute (ETUI) and the International Labour Office (ILO) have thus pushed for COVID-19 to be recognised as an occupational disease. Substantial

differences exist between various EU countries' insurance and compensation systems, making them difficult to compare. However, almost all EU countries have classified COVID-19 as an occupational disease, allowing workers access to relevant benefits. Furthermore, some countries, such as France, Germany, Italy, and Portugal have provided special automatic recognition of COVID-19 as an occupational disease for healthcare workers, or more broadly, for those working within the health service (ILO, 2021).

In view of COVID-19's propensity to spread within workplaces, the emergence of 'Long Covid' and COVID-19's link to the possible development of secondary diseases, it would therefore benefit workers to be aware of the occupational social measures that may be available to them. In particular, Injury leave could provide workers with support in situations where they experience long-term symptoms that exceed the quarantine period. Grants and pensions may be of benefit for those who experience permanent health-related changes. In order to facilitate claims by affected individuals, policy makers should consider adding COVID-19 to Malta's list of recognised occupational diseases. Furthermore, workers would benefit from the introduction of mechanisms whereby occupational disease social measures could automatically apply to all workers who are disproportionately exposed to infection. In particular, the disproportionate risk healthcare workers and those others who work in healthcare settings experience should be recognised, and claims for social support by such workers should be facilitated.

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