

## ORIGINAL ARTICLE

# Barriers and Opportunities of Nutrition Screening in Elderly Patients in Health Clinic Settings in Kuantan, Pahang: A Qualitative Study

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## ABSTRACT

**Introduction:** The elderly population are susceptible to malnutrition due to many factors. Hence, timely malnutrition identification through nutrition screening needs to be performed routinely in health clinics. However, the nutrition screening practice in health clinics need to be improvised for malnutrition identification among the elderly population. This study identifies barriers and opportunities for nutrition screening in elderly patients in health clinic settings. **Method:** A qualitative study was conducted among healthcare staff from urban and rural health clinics in Kuantan, Pahang, Malaysia. In-depth individual interviews were performed, audio-recorded and transcribed verbatim. Non-participant observations that act as triangulation were conducted among elderly patients (aged  $\geq 60$  years) attending the sampled health clinics. Both data from the interviews and observations were analysed thematically using NVivo software. **Results:** Twenty healthcare staff participated in the interviews were medical officers (n=6), medical assistants (n=8), staff nurses (n=4), and community nurses (n=2) with a mean age of  $33.7 \pm 6.3$  years. Twenty-one elderly patients were involved in non-participant observations. The four themes that emerged as barriers and opportunities were: time, patient factors, organisation factors and nutrition screening knowledge. Time constituted the main barrier, whilst incorporating a validated nutrition screening tool into current health screening practices was identified as the most practical approach to performing nutrition screening. Staff also highlighted the need for appropriate guidelines for implementing nutrition screening. **Conclusion:** This study identified appropriate approaches to implementing nutrition screening among elderly patients in health clinics. Developing a comprehensive nutrition screening guideline may facilitate healthcare staff in performing nutrition screening.

**Keywords:** Malnutrition, Elderly, Nutrition screening, Barriers, Opportunities

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and cognitive problems; depression and dementia, functional and social problems (3). Malnutrition is a "state of being poorly nourished that may be caused by the lack of one or more nutrients (under-nutrition), or an excess of nutrients (over-nutrition)" (4 p.4).

## INTRODUCTION

Good nutrition is an important determinant of health independence and life quality in elderly people (1). However, ageing is accompanied by many life changes which make meeting nutritional needs difficult (2). The elderly often suffer from malnutrition due to impaired food intake, medical conditions, psychiatric

The age by which one is defined as elderly varies among researchers. In Malaysia, the elderly are recognised as people aged 60 years and over, which is in agreement with the recommendation of the United Nations and the Ministry of Health (5). By the year 2020, the number of elderly in Malaysia is expected to increase from 6.5% in 2018 to 7.2% (6). Consequently, the prevalence of

diseases is anticipated to increase. Hence, maintaining the optimum nutritional status is fundamental for the health of the elderly to avoid deteriorating health (7). Malnutrition contributes to undesirable effects on health risk, increased mortality, longer hospital stay, poorer function and quality of life (8). If all the risk factors are left untreated, it will result in poorer nutritional status, increased medical complications, and loss of independence (9). Thus, the early identification of malnutrition is needed to prevent the elderly from the adverse consequences of malnutrition.

Previous studies recorded that 27% to 38% of the elderly are at risk and malnourished (10–12). Other studies identified an alarming rate of 43.1 to 48.9% and 42 to 56.9% of male and female elderly are at risk of malnutrition (13–15). The elderly who are vulnerable to malnutrition need to be screened routinely (3,16). However, malnutrition is still under-recognised among the elderly due to the absence of specific nutrition screening procedures in health clinic settings (16). Nutrition screening is an easy and quick procedure to identify individuals at risk of malnutrition or malnourished (17). It can be performed using a valid nutrition screening tool available in questionnaire format addressing the risk factors and indicators of malnutrition prior to comprehensive nutritional status assessment (18). A major issue is the absence of a specific nutrition screening guideline and validated tool available for malnutrition identification in elderly patients in this setting. The current practice in Malaysian health clinic setting is for healthcare staff to complete '*Borang Saringan Status Kesihatan*' (BSSK/WE/2008 Pind 1/2014) for elderly patients. The BSSK form consists of several parts, including a nutrition component. There are two sets of 'yes' or 'no' questions to be answered. The questions are whether the patient consumes three main meals and various foods such as milk, vegetables, and fruits (19). The questions in the nutrition component are insufficient to identify malnutrition. To achieve this requires the use of a validated nutrition screening tool as a systematic approach by identification of malnutrition risk. This study recognises feasible ways of nutrition screening in health clinic settings to identify barriers and opportunities of nutrition screening in elderly patients among healthcare staff in health clinics. The findings of this study will lead to planning and implementation of nutrition screening in elderly patients attending health clinics in Malaysia.

## MATERIALS AND METHODS

### Study Design

This is a qualitative study for an in-depth understanding of health research, including primary care to improve the management and provision of health services (20).

### Sampling

Four (n=4) health clinics in the district of Kuantan,

Pahang, Malaysia were selected in this research. Kuantan is the capital city of Pahang with a higher proportion of healthcare staff compared to other districts. Furthermore, data from Pahang Health State Department demonstrated that Kuantan has the highest number of health clinics in the region for urban and rural areas. Health clinics located in two urban and two rural areas in Kuantan were selected from 11 health clinics. These two urban and two rural government health clinics were selected to ensure that data is represented from different types of geographical area. Purposive sampling was utilised to recruit informants in health clinic settings. This sampling method is not intended to generalise the population but aimed to determine the common characteristics or links between the observed settings and other settings and represent the diversity within that population (21).

### Informants

Healthcare staff in health clinics consisting of medical officers, medical assistants, staff nurses and community nurses were recruited for interview. The staff were selected as they were among the first contact with patients in health clinics (22). The researcher approached the potential informants and explained this study. All the informants completed an informed consent form prior to the interview sessions. Five to fifty informants were needed to obtain a sufficient range of experiences and depth of information to reach theoretical saturation (23), when no new data is produced to provide new insights into the research objective. A specific reference number (e.g. P01) was assigned to each informant. Furthermore, non-participant observations were performed as triangulation which involved different sources of data in producing more in-depth understanding (24). Triangulation aimed to increase the confidence of the findings through different methods and approaches (24). The participants in this non-participant observation were the elderly aged  $\geq 60$  years attending health clinics and registered and received treatment in health clinics. In this study, methodological triangulation has been performed using two different methods: in-depth interviews and non-participant observations. Methodological triangulation by observations may explain and increase the confidence of the research findings in the in-depth interview (25).

### Data Collection

#### *In-depth Individual Interview*

A semi-structured interview guide (Table I) served as a guide while conducting the in-depth interviews. The semi-structured interview guide was adapted from Hamirudin et al. (26). All interviews were performed in Malay language, face-to-face in an allocated room in the health clinic and lasted approximately 30 minutes to one hour. Before the interview started, the sociodemographic data of the informants was obtained. During every interview session, only the researcher and informants were present. In addition, each interview

**Table 1: Topics addressed in the interview guide**

Topics	Questions
1. Knowledge	<ul style="list-style-type: none"> <li>• What do you know about nutrition screening?</li> <li>• How do you identify elderly who are malnourished?</li> </ul>
2. Barrier	<ul style="list-style-type: none"> <li>• What are factors that become barriers to conduct nutrition screening?</li> <li>• What is your opinion about time factor?</li> <li>• What is your opinion about organisation factor?</li> <li>• What is your opinion about priority to conduct nutrition screening?</li> <li>• Who need to conduct nutrition screening?</li> </ul>
3. Opportunity	<ul style="list-style-type: none"> <li>• How to overcome the barriers, so that nutrition screening can be conducted?</li> <li>• Based on your opinion, what improvement can be done on existing system?</li> </ul>

was audio-recorded and transcribed verbatim.

### **Non-participant Observation**

Non-participant observations involved observing participants without actively engaging them in order to understand the phenomenon of interest (27). The elderly aged  $\geq 60$  years were involved in this observation. In this study, the researcher observed clinic flow and the time taken by elderly from arrival until departure. The observation was conducted without their knowledge to eliminate bias as they might alter their behaviour (28). Besides, informed consent is also waived by the ethics committee due to no risk to elderly patients. Consequently, additional information and comprehensive data on particular topics can be obtained to strengthen the findings (24). Healthcare staff who were in-charge at the registration counter informed the researcher if any patients aged  $\geq 60$  years arrived and the non-participant observation started immediately. The time spent by the elderly were documented in field notes. Non-verbal expressions and gestures were also reported in the same field note. Field notes will allow an observer to report the environment and interaction, impression and important context for data analysis (29). Besides, field notes should be highly descriptive because all the information related to participants, settings, activities and behaviours will be described in detail (30). The researcher's observations, thoughts about the environment, and interaction provide a comprehensive description of the data (29). Every field note was utilised and analysed together with data from the interviews.

### **Data Analysis**

Thematic analysis was used to analyse the interview data. The organisation and analysis of data followed the steps outlined inductively by Braun and Clarke. According to Braun and Clarke (31), thematic analysis involves familiarising with the results (Phase 1), generating initial codes (Phase 2), developing preliminary themes (Phase 3), reviewing and modifying preliminary themes (Phase 4), describing themes (Phase 5) and write-up (Phase 6).

One researcher performed familiarisation of the data set following initial familiarisation with the transcripts to develop codes. Familiarisation is defined as a process of "immersion" whereby the researcher gets to know the data extensively and becomes familiar with the content (32). The researcher then coded the transcripts relevant to the research questions. Qualitative coding allows a researcher to reflect and simplify the data to the criteria needed (33). The process of coding stopped once all the data were coded thoroughly and all the information covered. The next phase begins once all the coded data has been developed, collated and organised into preliminary themes (31). All the themes were reviewed, revised, and defined to answer the research questions (31). The review process involved checking all the data to prevent misinterpreting the findings (32). Furthermore, all the selected themes need to be refined and specific to capture all the content (31). Thus, significant and manageable themes have been produced (34). In phase five, themes have been defined to identify the main idea. Discussion and finalisation of all coded data and themes were performed critically by the six members of the research team. The aimed is to enhance the trustworthiness of the findings (33). In addition, the discussion aimed to avoid potential bias and provide insight into data analysis using a reflexive approach to the collection and analysis of data (35). Furthermore, the quality of the emerging explanations can be improved by this well-established technique (36). After finalisation, themes have been reported and written up. NVivo software version 12.0 (QSR International) was used for data analysis.

### **Ethical Approval**

The Medical Research and Ethics Committee, Ministry of Health Malaysia (NMRR-19-731-47602) granted ethical approval for the study. All participants were required to complete a written informed consent form prior to interviews.

### **RESULTS**

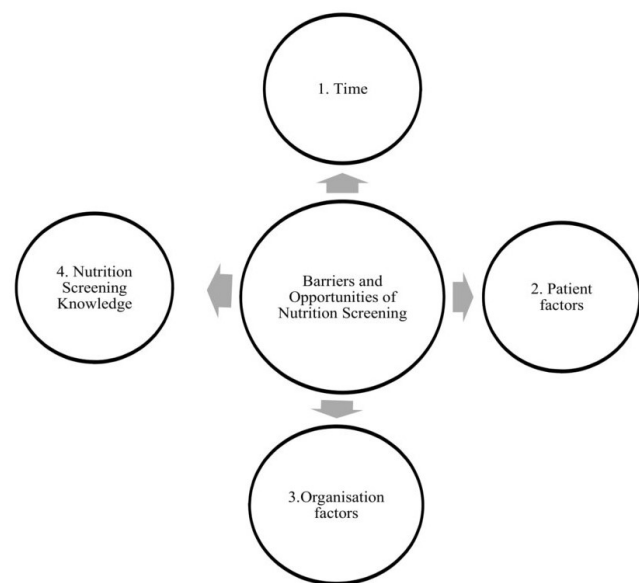
Twenty healthcare staff participated in the in-depth individual interviews involving medical officers (MO) (n=6), medical assistants (MA) (n=8), staff nurses (SN) (n=4) and community nurses (CN) (n=2). Data saturation was reached by 18 interviews. The mean age of participants was  $33.7 \pm 6.3$  ranging from 26 to 48 years. Table II presents the demographic and characteristics of the participants.

Meanwhile, twenty-one elderly (n=21) persons were involved in the non-participant observation. Four themes emerged for barriers and opportunities from the analysis of interviews and observation: 1) Time 2) Patient factors 3) Organisation factors 4) Nutrition screening knowledge. Field notes from non-participant observation were used to support the context and meaning of themes. Figure 1

**Table II: Demographic and characteristics of participants**

Characteristics	Overall (n=20)	Urban (n=11)	Rural (n=9)
Age (year) <sup>a</sup>	33.7±6.3	33.3±7.4	34.1±5.5
<b>Gender<sup>b</sup></b>			
Male	5.0(25.0)	1.0(9.1)	4.0(44.4)
Female	15.0(75.0)	10.0(90.9)	5.0(55.6)
<b>Educational level<sup>b</sup></b>			
Degree	6.0(30.0)	3.0(27.3)	3.0(33.3)
Diploma	12.0(60.0)	6.0(54.6)	6.0(66.7)
Certificate	2.0(10.0)	2.0(18.2)	0.0(0.0)
<b>Position<sup>b</sup></b>			
Medical Officer	6.0(30.0)	3.0(27.3)	3.0(33.3)
Medical Assistant	8.0(40.0)	5.0(45.5)	3.0(44.4)
Staff Nurse	4.0(20.0)	1.0(9.1)	3.0(33.3)
Community Nurse	2.0(10.0)	2.0(18.2)	0.0(0.0)
<b>Duration of working<sup>b</sup></b>			
<5years	3.0(15.0)	2.0(18.2)	1.0(11.1)
5-10 years	9.0(45.0)	6.0(54.6)	3.0(33.3)
10-20 years	7.0(35.0)	2.0(18.2)	5.0(55.6)
>20 years	1.0(5.0)	1.0(9.1)	0.0(0.0)

<sup>a</sup> represented as Mean±SD  
<sup>b</sup> represented as n(%)



**Figure 1: Themes emerged from data analysis**

presented the identified themes.

**Barriers To Implementing Nutrition Screening**

**Theme 1: Time**

Informants discussed the barriers related to time. Most mentioned that time was a barrier to nutrition screening. The time factor involved healthcare staff, caregivers as well as patients. Most caregivers had time constraints preventing them from long waits in clinics.

*“The factor is due to limited time. They come with caregivers and most caregivers are in a rush due to*

*work” (P10, SN)*

*“Most of them are sent by a caregiver. They are afraid if their caregiver needs to wait for a long period” (P20, MA)*

Healthcare staff also mentioned that long waiting times among patients was one of the identified barriers. They stated that most patients were unwilling to wait long durations in clinics, including for screening.

*“Waiting more than 30 minutes is too long for them. They will become uncomfortable and start to ask for their turn ...” (P05, MA)*

Based on observations, patients started to feel uncomfortable as they frequently looked and went outside, kept asking staff for their turn and started to become irritated due to the long waiting time.

Patients spent a mean (SD) of 5.54±3.55 minutes waiting for registration, 13.13±7.32 minutes waiting for screening, 16.00±15.14 minutes waiting for the procedure, 16.17±13.70 minutes waiting before entering diabetic educator’s room, 32.40±31.03 minutes waiting for consultation and treatment and 8.07±6.01 minutes waiting for medication. Besides, patients spent a mean (SD) of 70.33±29.58 minutes for one session per day in the health clinic.

**Theme 2: Patient factors**

Staff indicated that patients may be reluctant to undergo nutrition screening particularly when they come to health clinics for other health concerns.

*“Some patients are fixed. If they have a fever, they need fever medication only” (P08, MO)*

*“Patients come for medicine only...” (P10, SN)*

Furthermore, some patients think that nutrition screening is not a priority and are therefore not interested.

*“Patients think nutrition screening will take a long time. Hence, they refuse and are not interested in nutrition screening...” (P05, MA)*

*“Patients are in a rush. They are not interested in answering all the questions. They think that nutrition screening does not provide any importance for them” (P22, MO)*

Based on observations, patients came to the clinic for registration and underwent routine screening such as height, weight and blood pressure measurement at the screening area. Patients might also check their blood, urine test and x-ray. Patients consulted a medical officer once the screening was complete and went to the

pharmacy to collect their medication.

### **Theme 3: Organisation Factors**

The healthcare staff in health clinics mentioned the inadequate number of staff and lack of space to conduct nutrition screening as barriers.

*"The problem is when we have an inadequate number of staff"* (P03, MA)

Based on observations, one to two healthcare staff will be available in the screening area depending on the clinic.

*"... we need to have a proper room for patients' privacy. Currently, we conduct screening outside, thus patients become uncomfortable..."* (P09, MA)

Lack of space in the waiting area caused patients discomfort when waiting. Based on observation, patients were standing due to occupied seating.

### **Theme 4: Nutrition Screening Knowledge**

Inadequate knowledge regarding nutrition screening hindered the nutrition screening process.

*"I don't know about nutrition screening"* (P14, MO)

Some of the healthcare staff also mentioned that they had never seen any nutrition screening tools.

*"I have never seen these forms. We also don't have these in our clinic"* (P05, MA)

Based on observations, healthcare staff performed routine screening such as height, weight and blood pressure measurement. No forms were available for nutrition screening and there was no validated nutrition screening tool except for the existing 'Borang Saringan Status Kesihatan (BSSK)' form in the health clinic.

## **Opportunities To Implement Nutrition Screening**

### **Theme 1: Time**

Suitable time was identified as an opportunity to implement nutrition screening in health clinics.

*"Suitable time. Ermm, the morning is usually quite busy compared to the afternoon. I think the suitable time to conduct nutrition screening is in the afternoon..."* (P10, SN)

*"During the afternoon is better..."* (P11, SN)

Based on observations, clinic flow was quiet in the afternoon (2.00- 5.00pm) for all clinics compared to in the morning. Low number of patients and shorter waiting time were identified in the afternoon compared to the morning.

### **Theme 2: Patient Factors**

Patients' conditions was recognised as an opportunity to conduct nutrition screening in health clinics.

*"If patients' conditions deteriorated, the score might change"* (P22, MO)

*"We can screen chronic patients. Haa, we can re-screen if they have acute problems later..."* (P08, MO)

Based on observations, patients who meet specific criteria can be screened for nutrition screening.

### **Theme 3: Organisation Factors**

Having cooperative and dedicated staff who prioritise nutrition screening can also become an opportunity for nutrition screening.

*"If we have a proper questionnaire, we are able to conduct nutrition screening. Staff also need to cooperate for this screening"* (P18, MO)

Staff also suggested incorporating nutrition screening within the existing practice in health clinics.

*"We can conduct this screening along with BSSK. We can incorporate it within BSSK"* (P15, SN)

Nutrition screening can be conducted based on the clinic's system and conditions.

*"Ermm maybe we can conduct on Monday or Friday due to the low number of patients. Because we don't have enough time during blood taking day..."* (P06, MA)

*"Choose specific days like blood taking day..."* (P11, SN)

Based on observations, patients who have a session with the diabetic educator were screened by the diabetic educator. Meanwhile, other patients were screened in the screening area. All clinics have low numbers of patients on Friday compared to other days, while three clinics have a low number of patients after 10 am. However, clinics' conditions could vary on each day.

### **Theme 4: Nutrition Screening Knowledge**

The provision of nutrition screening knowledge and materials in health clinics may facilitate healthcare staff to conduct nutrition screening. Healthcare staff mentioned that guidance is needed in order to conduct nutrition screening, and a validated nutrition screening tool in health clinics is needed.

*"Explanation or course regarding nutrition screening needs to be provided. It is to ensure all staff are aware about this screening..."* (P05, MA)

*“Knowledge materials, for example, this Mini Nutritional Assessment Short-Form (MNA-SF) needs to be copied and disseminated to all health clinics” (P08, MO)*

Based on observations, there is an opportunity for nutrition screening to be performed in health clinics if knowledge regarding nutrition screening and a validated nutrition screening tool are provided for healthcare staff.

## DISCUSSION

This study investigated barriers and opportunities of nutrition screening among healthcare staff in health clinic settings through in-depth individual interviews and non-participant observations. Malnutrition is a common issue among the elderly. Therefore, nutrition screening is warranted as early detection for subsequent intervention and treatment of risk (16). The feasibility of nutrition screening in primary care will act as a significant opportunity in identifying individuals who will benefit from intervention (3).

The first theme identified in this present study was time. Time is related to healthcare staff, patients, and caregivers, following other studies that discussed time constraint as one of the barriers to conducting nutrition screening (26,37–39). However, the authors indicated that time constraint was mainly among healthcare staff. Our finding was further validated by triangulation using non-participant observations. Nevertheless, the opportunity regarding time has been identified to overcome the barrier. Specific time needs to be allocated in order to perform nutrition screening. Few studies have discussed enablers related to organisations in order to overcome time constraints (26,37,39), but no other studies discussed opportunities regarding time for nutrition screening.

We have identified patient factors as another theme. Patients' attitude and cooperation were barriers to conducting nutrition screening. Some patients are unwilling to cooperate for nutrition screening. There were a few patients who came to seek medical treatment only. Hamirudin et al. (26) reported that patients may be unwilling to undergo nutrition screening if they come to the clinics for medical concerns. Most older patients are not comfortable revealing their poor dietary habits (26). Therefore, a few opportunities have been identified to overcome the barriers. The present findings identified patients with deteriorating health conditions and met specific criteria to be screened for malnutrition. It is according to a previous study that demonstrated that patients who have deteriorated health conditions with specific criteria are suitable candidates for nutrition screening (3). Patients need to be screened for malnutrition as malnutrition is commonly under-recognised in the community (40).

Our finding demonstrated that the organisation factor

concerning the lack of healthcare staff hindered them from conducting nutrition screening. There was also no specific nutrition screening tool available in the clinics. Craven et al. (37) reported that lack of formalised nutrition screening procedures were a barrier in community and other settings (41). This present study demonstrated that staff prioritise other tasks over nutrition screening which is parallel with the finding by Porter et al. (42), while workplace pressure also plays a role in causing low priority for nutrition screening (43). Despite identifying the barriers, opportunities related to organisations were identified especially in incorporating a nutrition screening tool within current health screening practices in line with other studies (26,44). In addition, effective teamwork within an organisation may produce positive outcomes in patients (45).

Another perceived barrier was lack of nutrition screening knowledge among healthcare staff. Unfamiliar and the absence of a validated nutrition screening instrument hindered the healthcare staff from performing nutrition screening. Several studies highlighted the inadequacy of knowledge related to nutrition in older adults among nurses and healthcare staff working in clinical settings (46). Quality of care that has been provided to the elderly population is influenced significantly by the knowledge and attitude about nutrition among healthcare staff (47). Despite that, several opportunities for nutrition screening knowledge were identified. Providing knowledge through continuous medical education (CME), training or explanation regarding nutrition screening is needed to ensure awareness of nutrition screening and improve knowledge. This opportunity is supported by studies on providing training and education for healthcare staff (37,39,47,48). Thus, nutrition screening knowledge is needed as healthcare professionals' education has been shown to produce sustained screening practice with improved nutrition care and outcomes among the elderly (49).

This study is limited by the number of eligible healthcare staff in the selected health clinics. However, we were able to achieve data saturation and obtained opinions from each relevant position in the health clinics including medical officers, medical assistants, staff nurses and community nurses. This study's strength is the non-participant observations that were triangulation to enhance the reliability and understanding of the study (50). This study findings have been transcribed by a single researcher and checked by all authors to ensure validity and reliability. This process was used in order to minimise bias (35). Data collection was also performed in urban and rural settings to obtain staff opinions in different geographical areas.

## CONCLUSION

In summary, the present findings demonstrated the barriers and opportunities for nutrition screening among

healthcare staff in health clinic settings. We found that time, patient factors, organisation factors and nutrition screening knowledge among healthcare staff featured as barriers to malnutrition screening. The findings also highlighted the factors in elderly patients that prevent nutrition screening from being conducted. Thus, identifying opportunities can guide healthcare staff in order to implement nutrition screening. Incorporating a validated nutrition screening tool into current health screening practices is the most feasible way to perform nutrition screening. The provision of knowledge and material could also enhance the implementation of nutrition screening.

Malnutrition screening in health clinics needs to be planned appropriately to ensure implementation is tailored to this setting. The outcome of this study serve as a guide in nutrition screening execution in health clinics. Nutrition screening can also be routinely performed according to health clinics system. There is a need to develop a specific nutrition screening guideline to identify malnutrition among elderly in this setting to facilitate implementation and improve staff knowledge.

#### ACKNOWLEDGEMENTS

This study was supported by the Fundamental Research Grant Scheme (FRGS), Ministry of Education (FRGS/1/2018/SKK06/UIAM/02/5). We would like to express our gratitude to healthcare staff for their participation in this study.

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