**Original Article**

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# Practices and Utilization Patterns of Nutrition Screening Tools among Pakistani Dietitians

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## ARTICLE INFO

## ABSTRACT

A high prevalence of malnutrition in Pakistan requires an urgent need to identify at-risk individuals so that they can be provided with immediate nutrition care, especially in hospital and community settings. Therefore, the use of validated nutrition screening tools (e.g., Malnutrition Universal Screening Tool (MUST), SGA, Mini Nutritional Assessment (MNA)) by dietitians for early identification and intervention of nutritional deficiencies is of utmost importance. **Objective:** To evaluate the use of nutrition screening tools among Pakistani dietitians. **Methods:** This cross-sectional study, based on a purposive sampling technique, utilized an online survey form (Google Form) which was launched on different social media platforms, especially WhatsApp groups of Pakistani Dietitians. A total of 87 dietitians participated in the study by filling out this form on a voluntary basis. Data about dietitians' demographics, workplace practices, and screening tools use were collected and analyzed in SPSS version 23.0 and presented in descriptive form (percentages and frequencies). **Results:** Hospitals were the primary setting (89.7%) of dietitians' practices, followed by consulting and community (3.4% both). Mostly dietitians (98.9%) were aware of the Nutrition Screening tools, but only 58.6% currently use the validated nutrition screening tools (e.g., MUST, NRS 2002, MST, MNA, SGA) in their workplace. The most commonly used nutritional assessment tools were SGA (52%), MUST (44%), and MNA (28%). **Conclusions:** While dietitians recognize malnutrition's prevalence, the use of validated nutrition screening tools is limited in their work settings. Therefore, standardized training and policy interventions are recommended to enhance tool utilization and address disparities, particularly in underserved regions.

## INTRODUCTION

Nutrition screening is critical in identifying individuals at risk of malnutrition, enabling timely intervention to improve health outcomes. It is defined by the American Society of Parenteral and Enteral Nutrition (ASPEN) and the European Society for Clinical Nutrition and Metabolism (ESPEN) as: "A process to identify an individual who is malnourished, or at risk of malnutrition, to determine if a detailed nutritional assessment is required" [1]. The tools used for Nutrition Screening are structured, evidence-based, and designed to assess key nutritional parameters for evaluating malnutrition. The main features of these tools are that they should be quick, user-friendly, cost-effective, standardized, and validated. By providing a standardized approach to evaluating nutritional status, these tools ensure that individuals at risk of malnutrition are promptly identified and referred for further assessment or intervention [2]. It is worth noting that a nutrition screening tool can be administered rapidly by any clinical or non-clinical healthcare professional, and it should be performed, usually on first contact with a patient, in order to identify the nutritional deficiencies and immediate consideration of nutritional support. Globally, various validated nutrition screening tools—such as the Malnutrition Universal Screening Tool (MUST), Nutrition

Risk Screening (NRS-2002), and Mini Nutritional Assessment (MNA)- are widely used in clinical and community settings [3]. However, the use of these tools in the healthcare system is quite low in low- and middle-income countries (LMICs) like Pakistan, despite the fact that these countries are still facing a high burden of malnutrition [4]. In Pakistan, although dietitians play a pivotal role in nutritional assessment and intervention, there is limited research on their current practices and the extent to which they utilize standardized screening tools in their work settings. Different studies from diverse regions across the globe highlighted barriers such as lack of training, time constraints, and institutional support as a few factors affecting the adoption of nutrition screening tools [5, 6]. Pakistan has a high burden of malnutrition with both forms, i.e., undernutrition and overnutrition [7]. So, understanding dietitians' practices in nutrition screening is not only important for improving patient care across different settings, but it may also be incorporated in policy development to improve population health.

Since there is no previous study that focused on the use of nutrition screening tools among Pakistani dietitians. There is no any policy on the implementation of a standardized approach for nutrition screening across Pakistani healthcare facilities. This study aimed to evaluate the use of nutrition screening tools among dietitians working across various healthcare settings in Pakistan.

## METHODS

This cross-sectional study was conducted from March 2025 to April 2025 by College of Human Nutrition and Dietetics, Ziauddin University. It aimed to investigate the current practices of using Nutrition screening tools among Pakistani dietitians, and for this, a study tool was used, which comprises a self-administered questionnaire encompassing a total of 14 questions. The questionnaire consisted mostly of closed-ended questions and was structured in the following two sections: (I) Demographic Information, including Age, gender, province, education, professional background, years of experience, and practice in a healthcare setting. (II) Questions related to Practices of Nutrition Screening Tools, e.g., use of specific tools (MUST, MNA, NRS-2002, SGA, others) and settings where these tools were applied (hospital, clinic, community setting). A pilot test was conducted with a small sample of 10 dietitians, representing a mix of clinical and academic backgrounds, to assess the questionnaire's face validity, clarity, and content consistency. These participants were asked to complete the draft questionnaire and provide feedback on the relevance of the questions, the clarity of the wording, and the overall flow and time required for

completion. Based on their feedback, minor revisions were made to the phrasing of two questions to eliminate ambiguity and improve understanding. The final questionnaire was confirmed to be clear and comprehensive, with an average completion time of approximately 5-7 minutes. As the primary goal of this pilot phase was to ensure the tool's face validity and practical applicability for our target population, a statistical test for reliability, such as Cronbach's alpha, was not calculated at this stage. Purposive sampling technique was used, with the target population consisting of dietitians working in various provinces of Pakistan. Sample size was calculated using OpenEpi, with a 90% confidence level, a 5% margin of error, and an anticipated frequency of 50%. After applying the finite population correction (n=121) based on our previous study [8], the calculated sample size was 84. The questionnaire was sent to the dietitians as a Google Form via social media platforms, mainly different WhatsApp groups of dietitians. The study was based only on a survey questionnaire, and the participation of dietitians to fill out the questionnaire was completely voluntary, which reflects their consent to take part in this study.

The collected data were entered and analyzed in SPSS software version 23.0, and the results were presented in the form of descriptive statistics, i.e., as frequency and percentage.

## RESULTS

The study surveyed 87 dietitians from different provinces of Pakistan to assess their knowledge and use of nutrition screening tools in their work settings. The majority (65.5%) of the dietitians were aged 25-34 years, mostly were from Sindh province (69%), followed by Punjab (23%) and KPK (8%). No response was received from Baluchistan and Gilgit-Baltistan. About 39.1% held a Bachelor's degree, and 33.3 % Master's degree. Among 87 dietitians who participated in the study, 55 (63.2%) were registered dietitians, and all are either currently working as a Dietitian or have worked as a dietitian in the past. Mostly dietitians have work experience of 1-5 years (52.9%) and mostly work in hospitals (89.7%) (Table 1).

**Table 1:** Sociodemographic Data of the Study Participants (n=87)

| Parameters | Category | n (%) |
|---|---|---|
| Age | 18-24 Years | 10 (11.5%) |
| | 25-34 Years | 57 (65.5%) |
| | 35-44 Years | 12 (13.8%) |
| | 45-64 Years | 8 (9.2%) |
| | 65 Years and Older | 0 (0%) |
| Province | Sindh | 60 (69%) |
| | Punjab | 20 (23%) |

| | Baluchistan | 0 (%) |
|---|---|---|
| | Khyber Pakhtunkhwa | 7 (8%) |
| | Gilgit-Baltistan | 0 (%) |
| Academic Qualification | Bachelor's Degree | 34 (39.1%) |
| | Enrolled in a Master's Degree Program | 18 (20.7%) |
| | Master's Degree | 29 (33.3%) |
| | Enrolled in a Doctoral Degree Program | 4 (4.6%) |
| | Doctoral Degree | 2 (2.3%) |
| Registered Dietitian | Yes | 55 (63.2%) |
| | No | 32 (36.8%) |
| Are you currently working as a Dietitian, or have you worked as one in the past? | Yes | 87 (100%) |
| | No | 0 (0%) |
| Working Experience | Less Than 1 Year | 10 (11.5%) |
| | 1-5 Years | 46 (52.9%) |
| | 6-10 Years | 18 (20.7%) |
| | 11-15 Years | 6 (6.9%) |
| | 16-20 Years | 3 (3.4%) |
| | Over 20 Years | 4 (4.6%) |
| Dietitians' work settings | Hospital | 78 (89.7%) |
| | Community | 3 (3.4%) |
| | Academic | 1 (1.1%) |
| | Research | 1 (1.1%) |
| | Private Corporation | 1 (1.1%) |
| | Consulting | 3 (3.4%) |
| Kinds of population participants are currently working in their work setting | Adult | 24 (27.6%) |
| | Adult; Geriatrics | 10 (11.5%) |
| | Pediatrics | 2 (2.3%) |
| | Pediatrics; Adult | 16 (18.4%) |
| | Pediatrics; Adult; Geriatrics | 35 (40.2%) |

All the dietitians agreed that Malnutrition is a prevalent problem in the Pakistani population, and Early Nutrition intervention will help to maintain the health of individuals and lead to speedy recovery from illness. Almost all of them (98.9%) were aware of the Nutrition Screening Tools; only (58.6%) used the validated tools for nutrition screening (Table 2).

**Table 2:** Dietitians' Knowledge and Use of Nutrition Screening Tools (n=87)

| Items | Category | n (%) |
|---|---|---|
| Do you agree that "Malnutrition is a prevalent problem in the Pakistani population? | Yes | 87 (100%) |
| | No | 0 (0%) |
| Do you agree that "Early Nutrition intervention will help maintain the health of individuals and lead to speedy recovery from illness"? | Yes | 87 (100%) |
| | No | 0 (0%) |
| Are you well familiar with the "Nutrition Screening Tools? | Yes | 86 (98.9%) |
| | No | 1 (1.1%) |
| Do you currently use, or have you previously used, validated nutrition screening tools (e.g., MUST, NRS 2002, MST, MNA, SGA) in your workplace? | Yes | 51 (58.6%) |
| | No | 36 (41.4%) |

The most commonly used nutritional assessment tools were SGA 28 (52%), MUST 21 (44%), and MNA 16 (28%) (Figure 1).
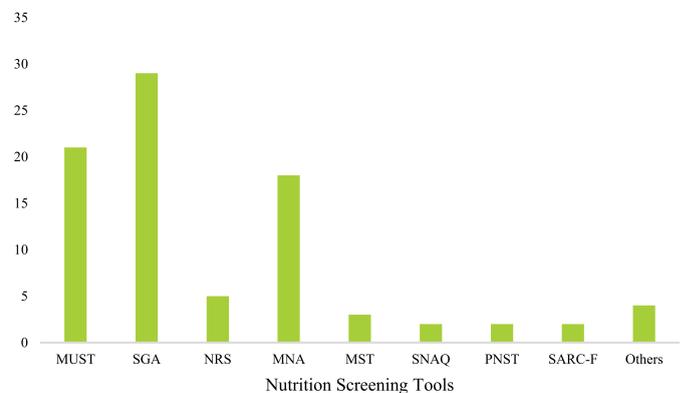


**Figure 1:** Frequency of use of different Nutrition Screening Tools among Pakistani Dietitians

*MUST= Malnutrition Universal Screening Tool, SGA= Subjective Global Assessment, NRS=Nutritional Risk Screening, MNS=Mini Nutrition Assessment, SNAQ= Short Nutritional Assessment Questionnaire, PNST=Pediatric Nutrition Screening Tool, SARC-F= Strength, Assistance with walking, rising from a chair, climbing stairs, and falling. The "Other" category refers to MUAC, weight machine, own methods, and BMI

# DISCUSSION

The findings of this study revealed that all the dietitians are concerned and acknowledge the prevalence of malnutrition in the Pakistani population. Most of the dietitians are from Sindh, followed by Punjab and Khyber Pakhtunkhwa. But the lack of representation from regions like Baluchistan and Gilgit-Baltistan reflected the scarcity of dietitians in these regions. This study showed that the majority of dietitians (89.7%) worked in hospitals, where they play a critical role in the management of nutrition care in inpatient and outpatient settings. In hospitals, the patients are usually directed to dietitians before and after surgery, given dietary advice, or consulted in cases when physicians recommend a patient to visit a dietitian in order to address their nutritional problems. However, in either case, there is a limited use of nutrition screening tools to identify nutritionally at-risk individuals, as reflected in our study, where 58.6% of dietitians used these screening tools. So, there is a need for standardization and validation of these tools to ensure their efficiency across varied patient populations [9]. This study also showed that although almost all the dietitians are aware of these tools, not all of them practice them in their daily routine. It is an alarming situation that in many countries, the use of these tools in hospital settings is mandatory as a part of standardized nutrition care, but in our country, there is no such recommendation or policy for its mandatory implementation. Globally, the progress in the field of

nutrition and dietetics is increasing, and the suggestions of introducing artificial intelligence-based systems in hospital settings to estimate patients' nutrient intake are being given focus in order to enhance the accuracy of nutrition screening with an aim to lessen the burden on healthcare professionals [10]. This study also revealed that, next to the hospitals, private consultation and work in the community settings are the two other domains of dietitians. In a community setting, dietitians play a prime role in the prevention of malnutrition via early detection and intervention programs [11]. So, whether in hospitals, community settings, daycare facilities, or long-term care, a proper diet is a foundation factor to address or reduce the risk of malnutrition. The importance of the use of validated nutrition screening tools in evaluating the patients' nutritional status is highlighted in a study that focused on the identification of such suitable tools for cancer patients and survivors so that they can receive proper nutritional guidelines before and after the treatment process [12]. In this survey, more than half of the dietitians used screening tools, but it is surprising to note that a survey conducted on American pediatric dietitians revealed that most do not use a validated nutritional screening tool to identify early feeding dysfunctions in children that impact their overall nutritional care [13]. Similarly, another study emphasizes the need for the use of validated nutritional screening tools in the pediatric population by registered dietitian nutritionists (RDNs) [14]. This study showed that at least three identified parameters/criteria for the diagnosis of malnutrition were adapted by registered dietitians and nutritionists (RDN) in our country. This result is aligned with the Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition (ASPEN) indicators for diagnosing malnutrition in hospitalized adults [15]. Another review emphasizes the need to improve clinical outcomes in patients with severe medical conditions through early identification of malnutrition using effective screening tools. It highlighted that by increasing awareness of healthcare professionals about malnutrition, timely intervention can be provided [16]. In this study, various tools were reported to be used by dietitians, with the most common ones including SGA (52%), MUST (44%), and MNA (28%). The application of different screening tools among dietitians reflects that dietitians can use different tools to identify at-risk individuals. These findings can be compared with the studies [17-19], which showed the use of somewhat similar tools in their studied hospital settings, i.e., MUST, NRS-2002, and MST. However, limited awareness and use of some tools, e.g., SNAQ, SCAR-F, and PNST, among Pakistani dietitians showed their limited knowledge in this regard. In addition, the choice of screening tool often depends on some elements, including

that it is easy to use, does not take much time, and to which population it must be applied. These findings correlate with the previous study [20]. which showed different tools used in their study setting, e.g., most commonly measuring Body mass index is utilized (62.0%) to identify perioperative nutritional risk, followed by MUST (57.9%), Percentage weight loss (19.8%), MST (1.7%), SNAQ (1.7%), and Nutrition Risk Screen 2002 (NRS-2002) (0.8%). This survey sheds light on educating dietitians for using nutrition screening tools in their work settings to improve the assessment and management of their clients or patients who are at nutritional risk. In addition, it also emphasized the addition of validated nutrition screening tools in all community and hospital settings as a component of standardized nutrition care practice.

Online social media sampling creates selection biasness on tech-savvy dietitians and therefore may have excluded international dietitians who have limited access to internet services in far-off areas. The limited sample (n=87) that has disproportional provincial representation (69% of Sindh) restricts national generalizability. Self-reporting can exaggerate real tool use in place of social desirability. The cross-sectional design only records the existing practices without evaluating the changes through time or the causes of not using them. The programs to develop the workforce must consider the geographical differences by encouraging dietitians to work in underserved provinces. The study of the comparative effectiveness of various screening tools among Pakistani populations would reveal the best tool to use in the local settings.

## CONCLUSIONS

In conclusion, this study demonstrates that although most dietitians are knowledgeable about a range of nutrition screening tools, their routine utilization in clinical and community practice remains limited. This gap between awareness and practice highlights the need for structured policies, standardized guidelines, and targeted training to support the consistent implementation of validated nutrition screening tools across healthcare settings. Strengthening their routine use may facilitate early identification of individuals at nutritional risk and contribute to improved nutrition care and clinical outcomes.

## Authors' Contribution

Conceptualization: MJ
Methodology: MJ, YS, NTS
Formal analysis: AM
Writing and Drafting: MJ, YS, NTS, AM, NN
Review and Editing: MJ, YS, NTS, AM, NN

All authors approved the final manuscript and take responsibility for the integrity of the work.

## Conflicts of Interest

All the authors declare no conflict of interest.

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