

Malnutrition: Epidemiological, Clinical, and Evolutionary Aspects of Patients Hospitalized in the Internal Medicine Department of Donka National Hospital

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Abstract

Introduction: The aim of this study was to investigate the epidemiological, clinical, and evolutionary aspects of malnutrition in the Internal Medicine Department of Donka National Hospital. **Methodology:** We conducted a descriptive study with prospective and dynamic data collection over a period of six (6) months from December 1, 2024, to May 31, 2025. This study concerned all patients hospitalized in the Internal Medicine department of the Donka National Hospital, in whom the diagnosis of malnutrition was retained using tools such as the MNA (Mini Nutrition Assessment) and/or weight loss > 5% in 1 month, or >10% in 6 months, BMI < 18 kg/m², albuminemia < 30 g/l, without distinction of sex and origin, with an age > 17 years during our study period. **Results:** We collected data on 694 patients, including 151 cases of malnutrition, representing 21.76%. The average age was 64.6 years ± 16.1 years, with extremes ranging from 17 to 104 years, and the predominant age group being 60 - 79 years (45.7%). Most were male. The female population had a sex ratio of 0.63. The majority of our patients were housewives (27.15%), followed by farmers and retirees, most of whom came from rural areas. Married individuals were the most represented, followed by widowers. In our study, we observed that moderate malnutrition predominated (80.1%), with weight loss being the primary reason for consultation. Patients had a BMI of 17 kg/m², and parenteral nutrition was the predominant form of nutrition (58.3%), followed by oral nutrition (41.7%). Weight improvement compared to admission

in 1 month was 85.4%. **Conclusion:** Malnutrition is a frequent complication in the Internal Medicine department and primarily affects elderly patients, with a mean age of 64.6 years $\pm$ 16.1 years and a female predominance. Early etiological diagnosis and multidisciplinary management are essential to improve the clinical condition of malnourished patients.

Keywords

Malnutrition, Internal Medicine, Donka University Hospital

1. Introduction

Malnutrition corresponds to an inadequacy between calorie and protein intake and the body's needs [1]. This is a public health problem that not only affects developing countries; it also affects the population of developed countries [2]. In most cases, malnutrition in hospitalized patients results from acute or chronic illness and can also be idiopathic (e.g., long-term corticosteroid therapy, diuretics, chemotherapy, radiotherapy, etc.) [3] [4]. Furthermore, it leads to a doubling of readmissions and increases the time required to return to work; it is a major factor in the development of certain diseases and in the increased morbidity and mortality of many pathologies [4]. The treatment plan involves an interprofessional team (dietitians, physiotherapists, nurses, nursing assistants, and physicians) and is based on dividing meals into smaller portions, combined with appropriate oral nutritional supplements (ONS) and micronutrient supplements. Nutritional monitoring will be supplemented by weight measurement and albumin testing [5]. Indeed, according to North American and European studies, the prevalence of malnutrition ranges from 10% to over 60%, depending on the populations studied, the criteria used, and the thresholds employed [6].

At the University Hospital of Strasbourg in 2019, Dos Reis C found that among patients with nosocomial infections, 49.9% were malnourished [7]. Thirty-two (32) studies conducted in 14 countries covering the five regions of the African continent reported that undernutrition was highest in the Central African Republic (33.4%) and lowest in South Africa (3.4%) by Mabiama in 2022 *et al.* [8] In Niger, Aminou *et al.* in 2020 found that the prevalence of malnutrition among cancer patients was estimated at 66.70% [2]. In Burkina Faso, Kambire *et al.* in 2021 reported a prevalence of 20.7% at admission and 28.3% at discharge for patients undergoing emergency digestive surgery [9]. In Lomé, Togo, Apeti *et al.* in 2023 found a prevalence of malnutrition and a risk of malnutrition of 87% [10]. In Benin, Mizéhoun-Adissoda *et al.* in 2022 reported that malnutrition was observed in 46.67% of hospitalized patients in Cotonou [11]. In Guinea in 2022, Milimono, in a cross-sectional study conducted among the elderly, reported a prevalence of malnutrition of 14.4% [12]. Thus, the high prevalence of malnutrition in hospital settings and the significant complications and costs associated with underlying comorbidities motivated the choice of this study.

2. Methodology

This was a prospective and dynamic descriptive study lasting six (6) months from December 1, 2024 to May 31, 2025. We included in our study all patients aged 17 years and over hospitalized for weight loss > 5% in 1 month, or >10% in 6 months, a BMI < 18 kg/m², serum albumin < 30 g/l, a reduction in meal intake greater than or equal to 50% for 7 days, reduced absorption associated with the use of the MNA (Mini Nutrition Assessment) tool, and a single criterion was sufficient to confirm malnutrition, having consented to the study and answered our questionnaires without distinction of sex or origin during our study period. For data collection, we used a pre-established survey form incorporated into the Kobocollect application, and patients' medical records contained the following items: sociodemographic and epidemiological characteristics. Then the data were entered and analyzed using SPSS Statistics software version 21. The data were collected anonymously, confidentiality was respected, and the free and informed consent of the patients was obtained.

3. Result

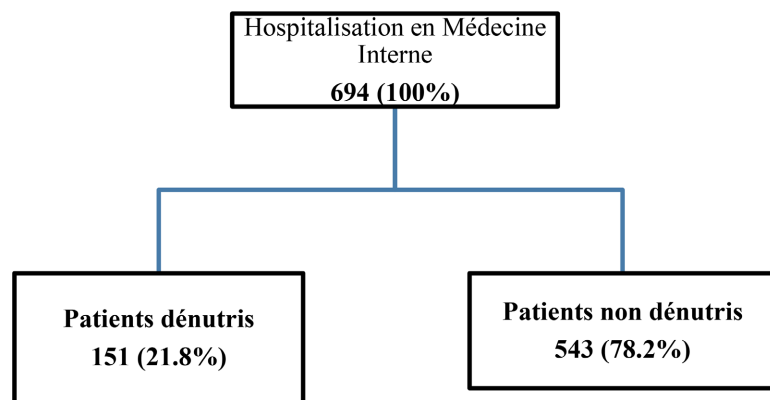


Figure 1. Patient flow diagram for hospitalized patients in the internal medicine department.

During the study period, we collected data on 694 patients, including 151 cases of malnutrition, representing 21.8% (**Figure 1**).

Table 1. Distribution of patients hospitalized for malnutrition according to age groups.

Age Range (years)	Effective	Percentage
17 - 39	15	9.9
40 - 59	34	22.5
60 - 79	69	45.7
80 - 99	32	21.2
100 - 119	1	0.7

Average age: 64.6 years $\pm$ 16.1 years. Extremes: 17 and 104 years.

The average age of the patients was $64.6 \text{ years} \pm 16.1 \text{ years}$, with extremes from 17 to 104 years, and the most represented age group was 60 - 79 years (45.7%) (see **Table 1**).

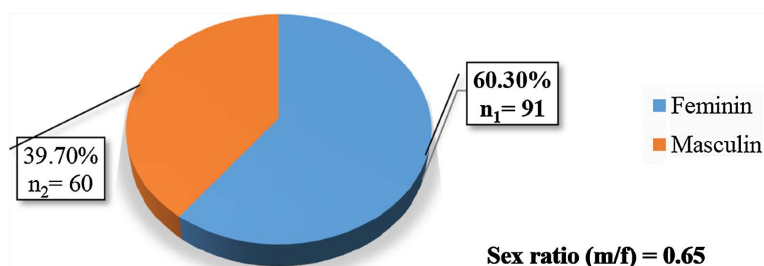


Figure 2. Distribution of hospitalized patients by sex.

During our study, we observed a female predominance (60.30%) (See **Figure 2**).

Table 2. Distribution of hospitalized patients according to marital status.

Marital Status	Effective	Percentage
Bachelor	9	6.0
Bride	90	59.6
Widowed	52	34.4

In our series, the majority of patients were married (59.6%), followed by widowers (34.4%) (See **Table 2**).

Table 3. Distribution of hospitalized patients according to reasons for hospitalization.

Reason for Consultation	Number of Employees (N = 151)	Percentage
Fever	49	32.5
Cough	21	13.9
Anorexia	98	62.9
Diarrhea	43	28.5
Vomiting	58	38.4
Weight loss	102	67.6
Physical asthenia	83	55.0
Lower limb edema	99	65.6

In our study, weight loss accounted for 67.6% of the reasons for consultation (**Table 3**).

Patients presented with an ABI at stage 3, representing 79.5% (**Table 4**).

According to the WHO criteria,

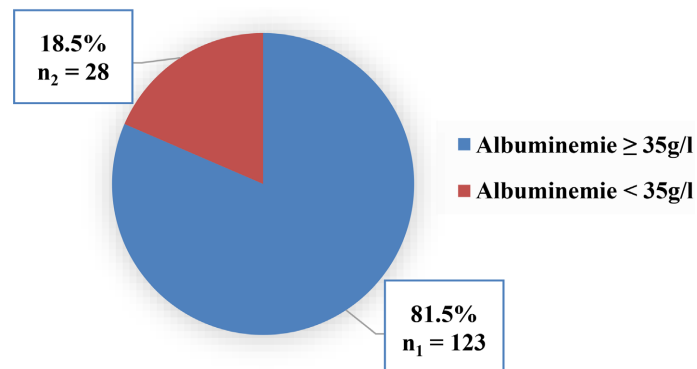
- Severe malnutrition BMI < 16 kg/m² (15.3%);
- Moderate BMI between 16 and 16.9 kg/m² (4.6%);
- Slight BMI 17 - 18.4 kg/m² (80.1%) (See **Table 5**).

Table 4. Distribution of hospitalized patients according to the performance indices (WHO).

Performance Indices (WHO)	Effective	Percentage
Stage 1	0	0
Stage 2	5	3.3
Stage 3	120	79.5
Stage 4	26	17.2
Total	151	100

Table 5. Distribution of hospitalized patients according to body mass index.

BMI (in kg/m ²)	Effective	Percentage
13	2	1.3
14	9	6.0
15	12	8.0
16	7	4.6
17	119	78.8
18	2	1.3
Total	151	100

**Figure 3.** Distribution of patients hospitalized for malnutrition according to serum albumin levels.

The majority of malnourished patients had an albumin level ≥ 35 g/l (**Figure 3**).

Table 6. Distribution of patients hospitalized for malnutrition according to etiology.

Etiologies	Number of Employees (N = 151)	Percentage
Hepatocellular carcinoma	50	33.1
Stomach cancer	24	15.9
Specific and non-specific pneumonias	20	13.2
Cirrhosis	18	11.9

Continued

Stroke sequelae	15	10
Diabetes	9	6
Cholangiocarcinoma	6	4
Pancreatic tumor	4	2.6
Hyperthyroidism	3	2
Senile dementia	2	1.3

The most common etiology was hepatocellular carcinoma (33.1%), followed by gastric cancer (15.9%). The Internal Medicine Department houses the only gastroenterology unit in the country, and there is no preclinical screening for liver diseases (**Table 6**).

The parenteral route was the most used, at 58.30% (**Figure 4**).

Weight improvement compared to admission within 1 month, representing 85.4% (**Table 7**).

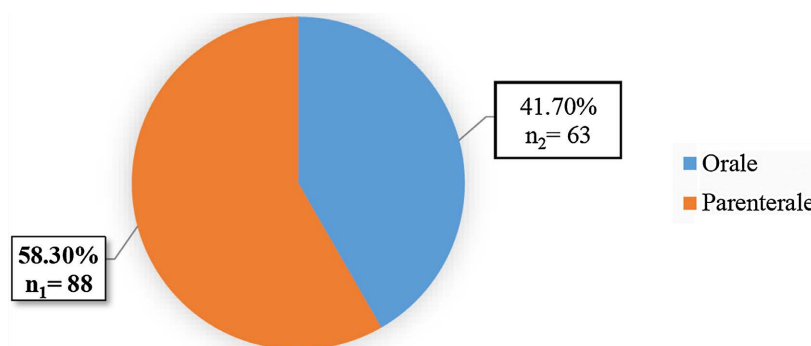


Figure 4. Distribution of hospitalized patients according to nutrient administration routes.

Table 7. Distribution of patients hospitalized for malnutrition according to their condition upon discharge.

State at Exit	Effective	Percentage
Improvement	129	85.4
Deceased	9	6.0
Transferred		
Surgery	3	2.0
Oncology	2	1.3
Nephrology	8	5.3

4. Discussion

During the study period, we collected data on 694 patients, including 151 cases of malnutrition (21.8%). Millimono *et al.* in Guinea in 2021 reported 14.4% of mal-

nutrition cases in their study. Shuremu *et al.* [13] in Ethiopia in 2023 found 53.8% of malnutrition cases. Mallé N'pie [14] in Mali in 2023 had reported 53.8%. The mean age of the patients was 64.6 years $\pm$ 16.1 years, with a range from 17 to 104 years; the most dominant age group was 60 - 79 years (45.7%). This result corroborates the findings of Muscaritoli *et al.* [15] in 2022, who showed that elderly patients were more susceptible to malnutrition. Similarly, Apeti *et al.* [10] in 2023 noted a range of 60 - 74 years (49%), while Mabiama *et al.* [16] reported a mean age between 65.0 and 79.7 years and 75 - 84 years (35.5%). This could be explained by the fact that malnutrition is a multifactorial condition and that the elderly constitute a vulnerable population, sometimes presenting several comorbidities. In our study, we observed a female predominance (60.30%). Kéïta [17] also noted a female-to-male ratio in admissions for malnutrition. Botero *et al.* [18] found a slight male predominance, which may reflect sociocultural and nutritional differences depending on the context. Clinically, it is essential to consider sex during nutritional assessment, as some risk factors may be specific. In our series, the majority of patients were married (59.6%), followed by widowers (34.4%). In our study, we observed that moderate malnutrition was predominant (80.13%). In our study, weight loss accounted for 67.6% of the reasons for consultation. This finding is consistent with data from the literature. According to WHO criteria, severe malnutrition is defined as a BMI < 16 kg/m²; moderate malnutrition as a BMI between 16 and 16.9 kg/m²; and mild malnutrition as a BMI between 17 and 18.4 kg/m². Millimono *et al.* had shown that low BMI is a major indicator of malnutrition and an unfavorable prognostic marker. Furthermore, Muscaritoli *et al.* had highlighted that a BMI < 18 kg/m² is strongly associated with increased morbidity, particularly in patients hospitalized in internal medicine [19]. These authors emphasize the need to supplement BMI measurement with a functional assessment (muscle strength, lean mass) to better assess the severity of malnutrition. Clinically, BMI remains a simple, reliable, and reproducible initial screening tool, especially in resource-limited settings where biochemical tests are sometimes unavailable. Volkert *et al.* [20] recommend parenteral nutrition when enteral or oral routes prove insufficient or impossible, particularly in cases of severe malnutrition. Bhasin *et al.* (2018) [21] reported similar results in the management of patients hospitalized in intensive care for severe malnutrition: parenteral nutrition led to a more rapid improvement in general condition and therapeutic tolerance. However, these authors emphasize the need for daily assessment of metabolic tolerance to prevent complications (hyperglycemia, fluid overload, catheter-related infection). The choice of nutritional route, therefore, depends on the clinical picture, the degree of malnutrition, and the patient's digestive function. In stable situations, oral nutrition, combined with calorie and protein supplementation, remains the first-line option. Correia *et al.* (2021) [22] had demonstrated that fortified oral nutrition reduces hospital stays and improves functional recovery scores. In our setting, the short hospital stay observed can be attributed to early nutritional intervention, good treatment adherence, and patient motivation to regain

satisfactory functional status. Weight improvement compared to admission was 85.4% within one month.

5. Conclusion

Malnutrition is a frequent complication in the Internal Medicine department and primarily affects elderly patients, with a mean age of 64.6 years $\pm$ 16.1 years and a female predominance. Early etiological diagnosis and multidisciplinary management are essential to improve the clinical condition of malnourished patients.

Author Contributions

Summary, introduction, methods, results, discussion, and conclusion: Dr. Mohamed Cissoko, Dr. Mamadou Diakhaby, and Dr. Kalil Nouny Sidibé. First proofreading with suggestions and remarks: Dr. Mohamed Lamine Conté, Dr. Bamis Martin, Dr. Lanciné Kourouma, Dr. Aboubacar Dioubaté, Dr. Sâa Joseph Téliano, Dr. Mohamed Adama Oularé, Dr. Amara Magassouba, Dr. Kanté Mamadou Aliou II, Dr. Diallo Mamadou Tafsir, Dr. Idrissa Diallo, Dr. Abraham Geopogui, Dr. Oumar Camara, Dr. Abdourahmane Diallo, Dr. Elhadj Salmana Diallo, Dr. Amadou Baillo Barry, and Dr. Fatoumata Bah. Second proofreading and final correction before submission: Pr. Djibril Sylla and Pr. Amadou Kaké.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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