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Older oncological patients' demand for coordinated care services after discharge from the hospital

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Abstract: Background: The increasing prevalence of multimorbidity among older adults, particularly those with cancer, highlights the need for coordinated post-hospital care. This study aimed to assess the demand for multidisciplinary post-discharge services among older patients, with a focus on oncological individuals.
Methods: We conducted a retrospective analysis of medical records from 200 patients aged ≥65 years hospitalized at the Department of Internal Medicine and Geriatrics, University Hospital in Krakow, Poland. Patients were divided into two age groups: 65–79 and ≥80 years. Data on medical history, cancer diagnosis, nutrition, rehabilitation needs, pharmacotherapy, and psychosocial aspects were extracted to determine post-discharge care needs.
Results: The most frequently identified needs included dietary counseling (54 patients), pharmacological review (27), psychological support (21), nursing care (13), and social work services (6). Cancer patients had significantly higher needs for psychological (100% vs. 40.1%, p <0.001) and nutritional support (85.7% vs. 64.2%, p = 0.002) compared to non-cancer patients. Older patients (≥80 years) showed significantly greater demand for social support (p = 0.045), with all requiring at least one type of post-hospital intervention.
Conclusion: Older adults, especially those with cancer, have high and complex post-discharge care needs that are inadequately addressed by existing services. The findings support the development of integrated geriatric care models to enhance continuity of care and patient outcomes following hospitalization.

Keywords: geriatrics, oncology, patients' needs, older patients.

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Introduction

Poland is a developed country with an ageing population [1]. According to the latest Eurostat estimates, the life expectancy of people aged 65 in Poland is estimated at 16.4 years (14.0 and 18.4 for men and women respectively) [2]. According to Statistics Poland, healthy life years at birth (HLY0) in 2022 are estimated at 60.1 for men and 63.7 for women. HLY at age 65 (HLY65) has increased since 2009 from 6.5 for men and 7.3 [3] for women to 7.7 and 8.9 respectively [4].

In Poland, almost half of hospital patients (48%) are aged 60 years and over, and cancer remains one of the leading causes of morbidity in this age group [5]. In their work published in 2021, Piotrowicz *et al.* [6] identified that multimorbidity appears in 88.4% Poles aged 65+ and in 93.9% those aged 80+, increasing the risk of polypharmacy. In the general group of the cancer patients the prevalence of polypharmacy is estimated to be between 35 and 41% [7].

With the growing number of older people, the government and local authorities are faced with the need to provide social and health services for this group of residents. In 2021 the Aktywni+ programme was launched and priority areas for seniors' activity have been highlighted [8]. These were: social activity, social participation, digital inclusion and preparation for old age. Such programmes are usually aimed at relatively healthy older people. Older cancer patients may feel excluded from such activities because of the stigma associated with a cancer diagnosis [9]. In addition, deteriorating health and a complexity of their medical problems may prevent them from participating in activities that require a good level of fitness.

Social policy for older people in Poland is mainly implemented in the area of economic support, but also aims to increase the social and intellectual activity of older people through the establishment of universities of the third age and the raise of initiatives promoting age-based diversity and inclusion, such as Senior Citizens' Activity Centers.

Early retirement and access to free medicines are other benefits for senior citizens in Poland. Since 2017, Poles retire at the age of 65 for man and 60 for women [10]. The retirement age in

Table 1. Criteria used to determine the post-discharge support.

Area of interest	Criteria used to determine the post-discharge support
Nutrition and counselling	NRS-2002 scale score ≥3 ONS, Enteral or parenteral feeding during hospital stay Documented weight loss or appetite disturbances Dysphagia or odynophagia
Social support	Insufficient care provided by the family (lack of family support) Use of the long-term care (LTC) services Discharge to LTC facilities
Psychological well-being	Cognitive impairment Use of antidepressants or anxiolytics History of cancer
Skin care	Wounds or bedsores
Physical activity and training	Length of the hospital stay ≥8 days Medical recommendations for rehabilitation after discharge
Drugs and adverse events	Polypharmacy (≥8 medications)

Poland is the lowest in Europe for women, and fifth the lowest for men. In Poland, from 2020, retirees and pensioners are entitled to an additional cash benefit in the form of a "thirteenth pension" [11] and from 2022, a "fourteenth pension" [12]. The average pension is 3311.61 PLN gross (approx. 740 EUR). From 2023, the free medicines program has been extended and applies to people aged 65 and over [13]. Despite these measures, older people with cancer may face additional financial challenges, such as the cost of travel to treatment centers or additional medication and healthcare services [14]. At the same time, data show that the actual needs (independence, interpersonal relations, living conditions, poverty) of Polish seniors may remain unsatisfied.

To mitigate those challenges an appropriate model of care that aligns with healthcare system is needed. To support the complex needs of older people with cancer, the EU Navigate programme has been established [15]. Its aims are to support older individuals with cancer diagnosis by helping them to access health services and promote social inclusion.

In order to identify the specific needs of older cancer patients, it is important to assess the needs of the general population of older patients. The aim of this study was to identify the most demanding post-discharge needs of older patients hospitalized for acute medical conditions.

Methods

We performed a retrospective analysis of electronic medical records of 200 consecutive patients hospitalized between June 2022 and September 2022 in Geriatric Department of University Hospital in Kraków, Poland. Included patients were divided into two groups: 65–79 years old (A) and ≥80 years old (B), both comprising 100 records. Data on demographics and medical history were extracted from each electronic record representing an individual patient included in the study. We searched for mentions of history of cancer, dietary history, rehabilitation, family support and medication use, which allowed us to determine the needs for further interventions accordingly. Records of the patients who died during the hospitalization were excluded from further research. research. Table 1 shows how post-hospitalization needs were assessed.

Results

We included 200 patients (52.5% female); the mean (SD) age of examined patients was 73.0 (SD 4.8) and 87.5 (SD 5.4) years for group A (46% female) and group B (59% female), respectively. The mean (SD) time of hospital stay was 8.0 (SD 7.76 for A and 5.19 for B groups) days, with no difference between the groups. Patients with cancer constituted 31.5% of the study group (the average age of 77.6 (9.4) years; 47% female). In general, 278 different services were needed by 100 patients aged 65–79, and 293 by those aged 80+ years, including 126 different services needed by the cancer patients in both groups (Fig. 1). The most common need was a dietitian support (54), followed by pharmacologists (27), psychologists (21), nurses (13) and social workers (6). On average each patient required 2 services (between 1–6).

Apart from social support, there were no differences between the age subgroups regarding the type of support (Table 2). There was 1 person from the younger who did not require any interventions, whereas all patients from the older group required at least 1 intervention. The differences between cancer and non-cancer patients are given in Table 3.

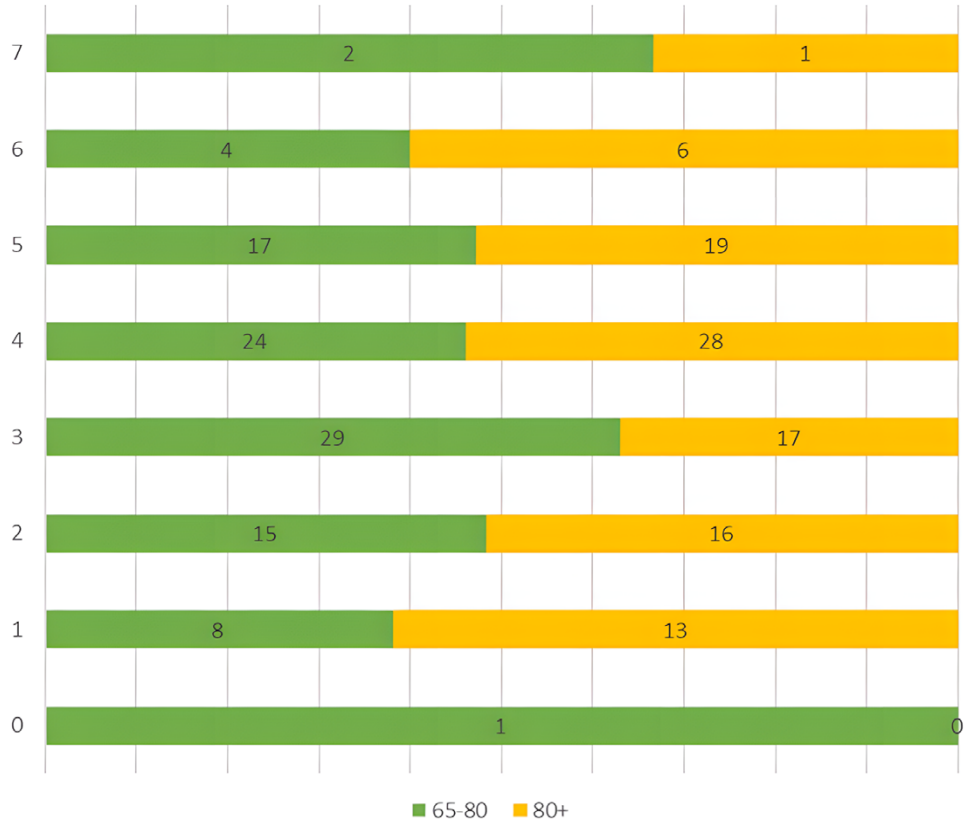

Fig. 1. Total demand of older patients to use post-discharge care services in particular age groups.

Table 2. Results of assessing the need for individual elements of coordinated care.

Area of interest	Younger patients (65–79 years) N = 100	Older patients (80+ years) N = 100	p
Nutrition and counselling	71 (71%)	81 (81%)	0.098
Social support	13 (13%)	24 (24%)	**0.045**
Psychological well-being	61 (61%)	62 (62%)	0.884
Skin care	17 (17%)	22 (22%)	0.372
Physical activity and training	55 (55%)	53 (53%)	0.777
Drugs and adverse events	61 (61%)	51 (51%)	0.154
Total	278	293	0.298

Table 3. Results of assessing the need for individual elements of coordinated care for patient with and without cancer.

Area of interest	Cancer patients (n = 63)	Non-cancer patients (n = 137)	p
Nutrition and counselling	54 (85.7%)	88 (64.2%)	**0.002**
Social support	6 (9.5%)	7 (5.1%)	0.239
Psychological well-being	63 (100%)	55 (40.1%)	**<0.001**
Skin care	13 (20.6%)	29 (21.2%)	0.932
Physical activity and training	5 (7.9%)	18 (13.1%)	0.284
Drugs and adverse events	27 (42.9%)	84 (61.3%)	**0.015**
Total	126	281	

Dietitian

Patients qualified by the NRS-2002 scale accounted for 51% qualifications for dietitian's support in group A and 65% in group B. Patients using enteral or parenteral nutrition products comprised 43% (in both groups). Of these, those with significant weight loss accounted for 27% (younger) and 19% (older). Patients with either dysphagia or odynophagia represented 5% (younger) and 3% (older) of the total population. Among patients with cancer 86% required a dietitian's support, compared to 64% of the non-cancer patients (p = 0.002).

Social worker

According to the information of inadequate care from family members, 2% of patients in the group A and 1% in the group B were identified as needing the assistance of a social worker.

Referring to the criterion of residence in long-term care facilities, 8% of patients in the group A and 14% in the group B were classified as requiring the social services. Based on the discharge to long-term care facilities, 3% of patients in the group A and 9% in the group B needed the social support services. No statistically significant differences were observed when compared the cancer and non-cancer patients.

Psychologist

Referring to the criterion of cognitive disfunctions, 32% of patients in the group A and 40% in the group B were classified as requiring the psychological support.

Based on antidepressant use alone, 15% of patients in the group A and 16% in the group B were identified with the need of the psychologist support.

Based on the criterion of cancer diagnosis in the interview, 36% of patients in the group A and 26% of patients in group B were classified into the group. All cancer patients required the psychological support, in contrary to the 40% of non-cancer patients (p <0.001).

Nurse

Seventeen per cent of patients in the group A and 22% of the group B were classified as requiring the services of a nurse. No statistically significant differences were observed when compared the cancer and non-cancer patients.

Physiotherapist

Because of a prolong hospitalisation 18% of patients in the group A and 14% in the group B were classified as requiring follow-up physiotherapy services. Eleven per cent of patients in the group A and 22% in the group B were identified as requiring the services of a physiotherapist, based on the discharge recommendation for rehabilitation. No statistically significant differences were observed when compared the cancer and non-cancer patients.

Pharmacist/Pharmacologist

Sixty-one per cent of patients in the group A and 51% of patients in the group B were classified as requiring the services of a pharmacologist/pharmacist and possible critical drug review with deprescribing. Pharmaceutical support was identified as needed among 43% cancer patients, while among non-cancer patients in 61% ($p = 0.015$).

We compared the total need for post-discharge care services in the two age groups studied. We found that most participants in our study needed 3–5 types of services. The age groups did not differ significantly in their post-hospital care needs, although it is important to note that all adults aged 80+ needed at least one intervention in the post-hospital period.

Discussion

Our study demonstrated the high and complex needs of older patients, including those with any type of cancer, discharged from hospital after an acute illness. We revealed six areas of post-acute multidisciplinary care that could be linked to the complex needs of discharged older patients and should be continued to maintain their health-related well-being. We found polypharmacy with potential deprescribing process, nutrition counselling and treatment, and psychological support as the most important areas of the further care. Strikingly, the three most frequently listed needs are those most often uncovered in the Polish public health system, and therefore area for further development or improvement. In terms of the cancer patients, the most frequently required supports were dietitian and psychology services.

The topic of post-hospitalization patients' needs was previously assessed in studies in various populations. In 2020 Zawawi *et al.* performed a systematic review of studies on the topic of post-hospitalization needs of stroke survivors and their caregivers [16]. Although the group studied is different from our study, many similarities can be found in terms of medical and social demands, as well as difficulties in communicating needs between post-stroke and geriatric patients. Similarly to our study, the results of the review were interpreted in categories related to continuation of medical treatment and psychological and/or social needs of the patient. The areas of stroke-survivors support analysed in the review were: stroke-related problems, social participation, information, and rehabilitation and care.

Dependency on caregivers may be perceived as another similarity between stroke survivors, cancer and geriatric patients. Due to that, it can be concluded, that when planning post-discharge care for older adults, the needs of caregivers should also be considered. According to results of the review by Zawawi *et al.* they reported mostly the need for educational resources and instruments of support, such as teaching caregiving skills, or emotional support [16]. Unfortunately, due to the retrospective nature of our analysis, caregivers' burden and their uncovered needs were beyond the scope of the analysis, although mentions of inadequate family care were found in 37 (6.5%) records.

In 1996, an exploratory study by Dansky *et al.* was performed to examine the demand for services following hospital discharge [17]. The authors noted that patients are often discharged earlier for economic reasons, leaving a gap for adequate home health services. The authors assessed 70 patients on the day of discharge and then analysed data on related adverse outcomes at one and two weeks of follow-up in patients who were referred to home care and those who were not. The authors concluded that as old adults are vulnerable to the negative effects of hospitalization, detailed plan regarding further care should be undertaken before the discharge. Another area of old patients' post-hospitalization support identified was an assessment visit at patient's home in few days after the discharge. This idea is very much in line with what we have identified in our study as the need for home care services by community nurses.

Providing the possibility of adequate nursing care at home could constitute a bridge to further forms of assistance that a patient needs most at the moment. We described a high demand for home nursing services among patients included in the research. According to Head Chamber of Nurses and Midwives, as of the end of 2022, 225 nurses with specialisation in community nursing were registered in Poland. As specialisation is not required to carry out home care visits, it is impossible to obtain a number of nurses who actually practice this form of care.

In addition to nursing care, our study identified other important elements of coordinated care for older adults in the community. As a large proportion of the study sample were at risk of malnutrition or already malnourished, we concluded that 51% of the older patients and 65% of the younger patients should be referred to a community dietitian. Until 2022, when coordinated care services were introduced in primary care, such services were almost inaccessible to the senior population. While in Poland community-based dietitians services are relatively new concept, referring a patient to a community-dietitian is a well-recognized practice in some other countries e.g. Australia and New Zealand. In the narrative review by Roberts *et al.* on the identification of malnutrition, sarcopenia and frailty in the community and management of these conditions, the authors underline that while undernutrition is often diagnosed and treated during the hospitalization, the length of the hospital stay may be too short to make a significant and lasting correction in the patient's nutritional status [18].

To some extent, the tasks of education on healthy lifestyle including healthy diet and physical activity are performed by Senior Citizens' Activity Centres. Their role is to promote intergenerational relations and various forms of action, including physical, educational, cultural, social, and public activities. The long-term goal of the centres is to improve the quality of life of senior citizens in local communities. Activity centres play a role in health prevention and the development of healthy habits, as well as providing social and psychological support. In our study, 32% of the patients in the younger group and 40% in the older group were expected to benefit from continuation the psychological support or post-discharge social activation due to history of psychiatric treatment, cognitive deficits, or lack of social support. In 2023 the little brothers of

the Poor Association (fr. Les petits frères des Pauvres) performed a survey on the topics related to loneliness [19]. According to a published report, 26% of the seniors surveyed said they experience loneliness often, 32% said they rarely feel lonely and 41% said they never feel lonely. In comparison to the other two groups, seniors that had experienced loneliness went out less often to pursue educational and social activities and 13% admitted that they never leave the house, mostly due to health-related issues. When asked about the ways of coping with loneliness, the group of seniors who often experienced loneliness, showed less involvement in possible coping strategies than those who rarely felt lonely. This difference (6% vs. 13%) was also seen in relation to the use of services such as the activity centres mentioned above.

What needs to be highlighted is that right after the data collection for our study, the Law on special geriatric care was established [20]. According to this document, the care of individuals aged 75+ would be provided within the geriatrics hospital wards (chosen for each voivodeship), health centres 75+ and in general practitioners' offices. The areas that we have identified as key factors in implementing adequate care for older adults after hospital discharge are in line with what has been proposed in this document. As it stands, the care aims to maintain the highest possible level of functional capacity and independency, to provide comprehensive geriatric assessment and developing and implementing an individual therapeutic plan, to conciliate pharmacological treatment, to arrange psychological support, to educate patients and their close ones. What is more, the Law targets to take preventive measures and arrange health promotion campaigns. Our results and aims of the Law present current unmet medical needs of Polish older population. The government and local authorities supported by health providers should prepare a policy to improve the accessibility of medical care for Polish seniors. The introduction of this Law may mark the beginning of further actions focused on improving the health situation of seniors in Poland and enhancing the quality of medical services.

Our study is burdened by some limitations. Our study was a single-centre, retrospective study of 200 older hospitalized patients. To confirm and extent our results, further studies need be conducted.

Conclusions

Reflecting on the demographic predictions, the current population structure, and the available research authors have determined areas that should be considered urgent in terms of future healthcare of seniors, especially those burdened with cancer. With over 50% of the records reviewed indicating a need for polypharmacy management, dietary advice or access to psychological support, these should be considered priority areas for supporting older adults. Attention should also be paid to the group of people ≥80 years of age, as their demand for social care services was found to be almost twice as high as that of the younger study population. With the new law on geriatric care being introduced, there is an urgent need to ensure that older adults can benefit from the care of different health professionals not only in hospital setting, but also after discharge.

Authors' contribution

A.R. — Data curation, Formal analysis, Methodology, Writing — original draft, review and editing, Project administration; R.K. — Investigation, Project administration, Visualisation, Resources, Writing — original draft, review and editing; D.P. — Data curation, Investigation,

Writing — original draft; J.H. — Data curation, Investigation; B.G. — Conceptualisation, Supervision, Writing — review and editing; J.G. — Conceptualisation, Methodology, Writing — review and editing; K.P. — Conceptualisation, Writing — original draft, writing — review and editing; J.S. — Writing — review and editing, Conceptualisation, Supervision.

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Conflict of interest

None declared.

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