



## PRE-POST STUDY

# Nursing Case Management Intervention to Improve Time Management and Satisfaction of Healthcare Providers in Palliative Cancer Care: A Pilot Pre-Post Feasibility Study

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## Findings:

*Riassunto breve delle novità che questo articolo apporta nel panorama scientifico o dei ritrovamenti principali o delle cose più importanti da sapere rispetto all'articolo*

## ABSTRACT

**BACKGROUND:** Managing an oncology palliative care pathway is often burdensome for professionals.

**Purpose.** to evaluate the feasibility of implementing a dedicated nursing case management service to improve time management and task satisfaction among healthcare providers and administrative staff in an outpatient palliative care setting.

**METHODS:** A pre-post survey study was conducted from February to August 2023. All professionals in an outpatient palliative care clinic estimated daily time spent on each activity and their task satisfaction before and six months after implementing a nursing case management service. Data on collection procedures, clarity of instructions, measure relevance, adequacy, and intervention implementation were also gathered.

**RESULTS:** Eleven professionals participated in the study. All feasibility measures were considered appropriate by responders. After case management implementation, palliative care physicians reported less time spent on treatment plan setup (-7.00 min/day), phone calls (-27.8 min/day), and completing reports and administrative records (-13.7 min/day). Nursing anamnesis (-10.0 min/day) and care coordination and organization (-15.8 min/day) showed a reduction in time between T0 and T1, and satisfaction about the latter varied from 3 to 5.5 points.

**CONCLUSIONS:** The proposed study design was considered feasible and adequate by all responders. The introduction of a nurse case manager led to a reduction in telephone calls and administrative documentation for medical staff, and increased job satisfaction. Bigger and more robust studies are needed to investigate the impact of a nurse case manager on satisfaction and time management of professionals in Palliative Cancer Care.

**KEYWORDS:** Case management; Palliative Care; Job Satisfaction; Patient care team; Outpatients.

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149

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STUDIO PRE-POST

## Intervento di case management infermieristico per migliorare la gestione del tempo e la soddisfazione dei professionisti sanitari nelle cure palliative oncologiche: uno studio pilota pre-post di fattibilità

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### Riscontri:

*The introduction of a nurse case manager has positive spin-offs in terms of work organization and staff satisfaction.*

### ABSTRACT

**BACKGROUND:** Gestire un percorso di cure palliative oncologiche è spesso gravoso per i professionisti.

**SCOPO:** Valutare la fattibilità di uno studio sugli effetti del case management infermieristico per migliorare la gestione del tempo e la soddisfazione nelle attività tra il personale sanitario e amministrativo in un contesto ambulatoriale di cure palliative.

**METODI:** Uno studio pre-post è stato condotto da febbraio ad agosto 2023. Tutti i professionisti hanno stimato il tempo giornaliero dedicato alle proprie attività e la relativa soddisfazione, prima e sei mesi dopo l'implementazione di un servizio di case management infermieristico. Sono stati registrati dati sulle procedure di raccolta, la chiarezza delle istruzioni, la rilevanza delle misurazioni, e l'implementazione dell'intervento.

**RISULTATI:** Hanno partecipato undici professionisti. Tutte le misure di fattibilità sono state giudicate appropriate. Dopo l'implementazione del case management, i medici hanno registrato una riduzione del tempo per la preparazione dei piani di trattamento (-7,00 min/giorno), telefonate (-27,8 min/giorno) e documentazione (-13,7 min/giorno). Anche l'anamnesi infermieristica (-10,0 min/giorno) e il coordinamento delle cure (-15,8 min/giorno) hanno mostrato riduzioni tra T0 e T1, con soddisfazione variata da 3 a 5,5 punti.

**CONCLUSIONI:** Il design dello studio proposto è stato considerato fattibile e adeguato da tutti i partecipanti. L'introduzione di un case manager infermieristico ha portato a una riduzione del tempo dedicato alle telefonate e alla documentazione amministrativa per il personale medico, aumentando la soddisfazione lavorativa. Sono necessari studi più ampi e solidi per indagare l'impatto di un case manager infermieristico sulla soddisfazione e la gestione del tempo dei professionisti nelle cure palliative oncologiche.

**KEYWORDS:** Case management; Cure palliative; Soddisfazione lavorativa; Team di assistenza al paziente; Pazienti ambulatoriali

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150

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## BACKGROUND

Comprehensive care management and coordination is a complex issue for cancer patients, typically requiring contributions from multiple healthcare professionals (HCPs).<sup>1</sup> Continuous interactions with the patients, their caregivers, and all the professionals who take care of them can become burdensome in terms of time and workload for the healthcare staff.<sup>2, 3</sup> The needs of these patients go beyond basic cancer treatments, and include communication, psychosocial support, and education for both patients and their families.<sup>4</sup>

This is especially important as patients transition to palliative care; some studies<sup>5, 6</sup> highlight that during this phase professional support is important to educate the patient and facilitate navigation in the healthcare system while ensuring adherence to validated treatment protocols.<sup>7</sup> Due to the higher complexity of palliative care patients' needs, a case manager is often involved for this purpose.<sup>8</sup>

Case management is a process that aims to achieve patient well-being and autonomy through the assessment, planning, implementation, coordination, monitoring, and evaluation of options and services.<sup>9</sup> Many studies<sup>10, 11</sup> attempted to define the impact of a case management intervention on patients (patient-reported outcome measures [PROMS], survival) and health system outcomes (costs, cross-referral), but the lack of a detailed description of the case management model has limited their generalizability and replicability. To the best of our knowledge, only one study<sup>12</sup> tried to define how a case management intervention might influence the time professionals spend on various tasks but did not consider their satisfaction with their performances. While case management interventions may reduce the time other professionals spend on specific activities,<sup>13</sup> it remains unclear if this translates to increased satisfaction of clinicians with daily work. Certain activities may be

more relevant to professionals' roles and spending less time on them could decrease job satisfaction.<sup>14</sup> However, as this area remains underexplored, no standardized methodology currently exists for its evaluation.

In this study we explored both outcomes, in order to achieve a comprehensive view on the subject. We assume that the implementation of the nursing case management service will reduce the time spent by HCPs on administrative and coordination tasks,<sup>12, 15</sup> allowing them to focus on clinical care, thereby increasing their satisfaction by allowing them to dedicate more time to specialized and patient-centered activities.<sup>16</sup> This study is one of the few that investigates both the time allocation of HCPs and their satisfaction with their tasks in the context of a case management intervention, particularly within an outpatient palliative care setting. By addressing a gap in the literature, it serves as a prompt for future research on how case management services impact not only patient outcomes but also the operational dynamics of healthcare teams.<sup>17, 18, 19</sup> Optimizing this dynamics could allow HPCs to focus on more specialized activities, which can enhance overall efficiency in patient care.<sup>20, 21</sup> With healthcare systems worldwide increasingly emphasizing multidisciplinary approaches and cost-efficient care models,<sup>22, 23</sup> understanding how case management interventions affect the efficiency and satisfaction of healthcare teams is crucial. This study offers initial insights that align with ongoing efforts to optimize the delivery of healthcare services,<sup>23</sup> particularly in resource-intensive areas like palliative care.<sup>24</sup>

## PURPOSE

The primary aim of this pilot study is to evaluate the feasibility of assessing whether a dedicated nursing case management service can improve time management and task-related satisfaction among healthcare providers and administrative staff in an

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outpatient palliative care setting. Through this approach, we aim to prompt future, more comprehensive studies that will examine the potential impact of case management services on HCPs' operational dynamics and satisfaction within palliative care. The time dedicated to specific activities by different HCPs before and after the intervention in an outpatient palliative care unit at a comprehensive cancer center in Italy was recorded and will also be presented, as well as their satisfaction regarding task fulfillment and relevance to their roles.

## METHODS

### Setting and participants

All secretaries and HCPs, including palliative care physicians, nurses, psychologists, and head nurses, from an outpatient palliative care unit at a comprehensive cancer center in Italy were invited to participate in this study. In our Institute, palliative care is provided via home care, outpatient services, or hospice services. Each setting has dedicated personnel that do not rotate between them. The study was approved by the ethics committee of our Institute (N. 210/22), and all HCPs provided written informed consent.

### Study design and measures

A pre-post survey study design was conducted from February to August 2023 assessing the impact of a nurse case manager (NCM) intervention on team members' task and time resources and related job satisfaction. To assess staff activities, we obtained the questionnaires used in a previous study on the topic<sup>12</sup> from its author. These instruments were then adapted to our cultural context by first conducting a forward-backward translation. Activities that were not performed in our setting were subsequently removed. Staff were asked to estimate the amount of time spent daily on each activity. As some activities are performed sporadically and are difficult to quantify

daily, participants were allowed to express their evaluations in preferred time intervals (i.e., minutes/hours per month), provided they specified the unit of measurement. To facilitate comparison, all results were converted to "minutes per day" during analysis. To improve the reliability of staff estimates, they were asked to refer to the standard working day (8 hours) and to a time interval of the last two weeks, except for activities performed less frequently. For each item, participants were asked to indicate their level of satisfaction on a numerical scale from 0 (not satisfied) to 10 (totally satisfied). Specifically, we requested them to provide an overall satisfaction report, considering both their contentment with how well they were currently performing each activity and their satisfaction with the necessity of carrying out that activity in relation to their specific role within the clinical team.

### Intervention

A NCM began the service in the outpatient clinic in February 2023. The selected nurse held a postgraduate degree in palliative care and another in case management and had already carried out case management activities in an oncology context for four years. The planning of activities was inspired by the "Arizona Case Management" model,<sup>25, 26</sup>

which preserves continuity of care through periodic follow-ups of patients and their significant others. This model envisions a mixed delivery approach, including telephone assessments and in-person hospital visits. The aim of the selected case management model was to act as a hub of a network to broker services across the continuum of care, addressing patients in the outpatient pain therapy clinic as well as in home palliative care. Assistance was primarily provided through phone consultations, while some follow-up clinical assessments were conducted during in-person visits when patients came to the outpatient clinic. The complete details of these activities are provided in Appendix 1. Since the head

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nurse and administrative staff in our institution focus on different goals and patient groups than the case manager, no interaction was planned in the current model. However, as this is an initial pilot project and these roles coexist within the same unit with potential indirect interactions, we decided to collect feedback from this staff as well.

## Data collection

The questionnaires were administered at two separate times: before the NCM was assigned to the palliative care facility (T0) and six months after the NCM began its activities (T1). The questionnaires were administered in person, with explanations of the study mechanics provided to each participant, and assistance available for any questions during completion. Data were collected in a pseudoanonymized form.

## Feasibility assessment

In order to assess feasibility of the implemented study design, we adhered to the guidelines on pilot feasibility studies described by Teresi et al.,<sup>27</sup> and recorded data from participants regarding data collection procedures (completion rates, reasons for non-completion), clarity of instructions and relevance and adequacy of measures according to dichotomised self-report of responders (with the option to provide suggestion for improvements), and intervention implementation (qualitative feedback from the NCM and the participants).

## Statistical analysis

Given the small sample size and the exploratory nature of this study, this research is not intended to yield a robust quantitative analysis, but instead aims to present initial descriptive data on the experiences and perceptions of healthcare professionals within our outpatient clinic. For this reason, descriptive statistics were used, including differences between reported time dedicated to activities and job satisfaction and

means. Due to the low number of participants, we did not calculate standard deviations, as these would lack statistical relevance.<sup>28</sup> Data analysis was performed using STATA software, version 17.0.

## AI disclosure

To enhance clarity, readability, and overall language consistency, ChatGPT-4 was utilized for this manuscript. All material was originally written by the authors, and the manuscript was subsequently reviewed for accuracy after employing the tool.

## RESULTS

Of the 12 potentially eligible professionals, one was excluded due to maternity leave, resulting in 11 participants who completed the questionnaire at T0 (pre-intervention) and T1 (6 months later); 9 of these participants were female. The distribution of professions included two nurses, one head nurse, four palliative care physicians, one psychologist, and three administrative staff.

After explaining the study's aims, all respondents were asked to provide feedback on several aspects: the clarity of the instructions given before assessment, the relevance of the study's aims and chosen measures, and their satisfaction with the NCM intervention implemented. All participants confirmed that the instructions were clear and that the study aims and chosen measures were relevant. Additionally, the methodology used to assess the time allocated to each activity and the satisfaction with daily tasks was deemed appropriate by all respondents.

Only one respondent, a palliative care therapist, provided qualitative feedback on methodological improvements. This therapist noted that although the method chosen for recording time spent on various activities was straightforward, it was challenging to accurately recall time for tasks performed infrequently. The physician also pointed out some difficulty in distinguishing between times for closely



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related activities listed on the physician chart, such as "Intake Interview," "Patient Interview," and "Interview with Next of Kin/Family Members," as these often occur concurrently. The therapist suggested that these activities might be grouped into thematic areas for clarity.

Regarding the feedback on intervention implementation, all respondents initially reported uncertainty about the NCM's role in the clinic. Four respondents (two palliative therapists and two administrative staff) speculated that the NCM's role might involve coordinating patient appointment bookings. By the end of the study, however, all respondents expressed satisfaction with the intervention.

The palliative therapists noted that a longer evaluation period could have allowed for a more thorough assessment of the NCM intervention, as it would have provided the NCM more time to adapt and become familiar with their assigned duties.

Lastly, it is worth noting that the administrative staff and head nurse did not have direct interactions with the NCM. The head nurse suggested that future implementations could benefit from enhanced integration between the NCM and these roles to improve collaboration and communication.

Data on the time spent on activities and satisfaction levels associated with professional roles are presented in *Table 1*.

**Table 1.** Mean variation in the time spent on activities and satisfaction of different professionals.

Professionals	Activities	Mean Time Delta (T1-T0)	Mean Satisfaction T0	Mean Satisfaction T1	Mean Satisfaction Delta (T1-T0)
Nurses (N=2)	Nursing activities(clinical)	0.0	7.5	7.5	0
	Nursing Anamnesis	-10.0	6	6.5	0.5
	Patient interview	15.0	7	8	1
	Interview with next of kin/family members	25.0	3	5.5	2.5
	Handoffs and meetings	7.5	7	7	0
	Coordination and organization	-15.8	3	5.5	2.5
	Paperwork/Documentation	10.0	4.5	6	1.5
Palliative Therapists (N=4)	Diagnosis	5	5.33	7	1.7
	Treatment plan setup	-7.00	7	7.3	0.33
	Intake Coordination	-4.8	4.5	5.25	0.75
	Intake interview	2.8	6.25	7	0.75
	Completion of intake documentation	2.0	4.5	5.8	1.25
	Discharge interview	11.5	6.5	6.75	0.5
	Patient interview	-2.5	7.5	7.75	0.25
	Interview with next of kin/family members	-0.8	6.25	7.75	1.5
	Team interview with doctors, nurses, and other departmental staff	6.3	6.75	6.5	-0.25
	Request for information from doctors, nurses, and other ward staff	-2.5	6.25	6.25	0
	Participation in multidisciplinary meetings	-3.5	7.33	7	-0.33
	Meetings and handover	1.3	4.33	5.7	1.33

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154

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	Phone calls	<b>-27.8</b>	4.73	5.85	1.12
	Consultation with general practitioners and specialists	5.6	4.75	5.75	1
	Consultation with Psychosocial Workers/Consultants/Physiotherapy	1.0	5.25	6.3	1
	Research*	4.6	5.25	6	0.75
	Compilation of reports, administrative records	<b>-13.7</b>	4	5.5	1.5
	Other patient-facing activities	3.5	6	6	0
Administrative s (N=3)	Management and coordination of communications	0.0	7.33	7.7	0.3
	Patient-related administrative activities	<b>-10.0</b>	7.66	8.3	0.6
	Service-related administrative activities	1	5	7.5	2.5
	Patient documentation	10.0	5.67	8.3	2.7
Head Nurse (N=1)	Coordination Intake	0.0			0
	Intake interview	15.0			0
	Compilation of admission documents	0.0			-1
	Patient interview	25.0			-1
	Interview with next of kin/family members	10.0			-1
	Meetings and handover	10.0			0
	Phone calls	<b>-40.0</b>			2
	Administrative and organizational activities	15.0			3
	Other patient-oriented activities	<b>-60.0</b>			ND
Psychologist (N=1)	First visit with patient	33.0			-1
	Other visits with patient	<b>-90.0</b>			-1
	Interview with significant people	<b>-9.0</b>			-2
	Family interview	18.0			-1
	Paired interview( pc/caregiver)	3.0			-1
	Strengthening the skills of the treatment team*	<b>-5.5</b>			1
	Coordination with activities of other residential psychotherapists	3.0			1
	Participation in Visits (medical or other specialist)	<b>-150.0</b>			1
	Meetings and handover	<b>-18.0</b>			2
	Phone calls	<b>-22.25</b>			-0.42
	Compilation of reports, administrative records	<b>-20.0</b>			0
	Research*	42.0			-1
	Teaching*	0.8			0

Raw evaluations of single professionals are available under request to corresponding author for privacy reasons. Negative values relates with time saving in "Mean Delta Time", while higher positive values relates with enhanced satisfaction in "Mean Satisfaction Delta". ND= no data, \* activities were performed on average less that once in two weeks.

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155

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In general, differences were observed between the observation points. For nurses, coordination, organization, and nursing anamnesis showed a reduction in the time spent between T0 and T1, while the degree of satisfaction with coordination and organization varied from 3 (T0) to 5.5 (T1). Palliative care physicians reported less time spent on treatment plan setup, phone calls, and compilation of reports and administrative records between the time points, where the degree of satisfaction with phone call management and compilation of reports increased by more than one average point between T0 and T1. Administratives spent less time on patient-related administrative activities and showed an enhancement in satisfaction with patient documentation and service-related administrative activities.

Due to the involvement of only one head nurse and one psychologist in this study, Table 1 omits their average satisfaction values at T0 and T1 to ensure proper anonymization of their responses.

Table 2 presents data on the daily time nurses, palliative therapists, and psychologists spend in consultation with the NCM and their corresponding satisfaction levels regarding this interaction.

**Table 2.** Average time for consultation and satisfaction about CM for different professionals

Professionals	Mean time for consultation with CM (minutes/day)	Mean satisfaction about CM
Nurses	6	9
Palliative Therapists	21.25	6.75
Psychologist	5	10

## DISCUSSION

In our study, the introduction of a case manager to a palliative care outpatient clinic received positive feedbacks from the professionals within the clinic, and the study design implemented was deemed

relevant and appropriate, and did not require modification for most of them.

Nonetheless, one of the responders pointed out that recalling the time spent on infrequent task was hard, and the estimate provided might not be accurate.

Recall bias<sup>29</sup> is a well-known effect documented in the literature, that may affect accuracy of data reported by responders. Nonetheless, the only previous study<sup>12</sup> on the theme documented the time dedicated to each activity by asking professionals to document their activities once a day. This method was not deemed appropriate in our setting, as it would be too time consuming in a setting already burdened due to high workload. Moreover, the respondents considered the timeframes provided for time assessment inadequate, but only concerning activities performed less frequently. These activities not only have minimal overlap with those carried out by the NCM, but they would also have been challenging to analyze due to the limited data available. Future studies may consider to eliminate those activities that are not directly related to main clinical duties, such as teaching or research, or those that are not performed at least on weekly basis by responders.

Regarding qualitative feedback on the intervention itself, is worth noting that none of the responders was aware of the specific role the NCM would have played within the Unit, and its task were mostly associated with booking appointments. Nonetheless, the intervention was satisfactory, although it may have benefit of more interactions with the head nurse. Although the literature on this topic is extensive, the high variability in the role and the fact that the Case Manager position is still relatively new in Italy likely contributed to initial uncertainty among participants regarding its full potential. This observation aligns with previous studies on the subject,<sup>30</sup> although these were conducted in contexts where the NCM role was already established. To expedite the integration of this

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new role into the operational unit, future studies could consider including an initial phase featuring an introductory presentation for the staff, along with co-creation sessions to address any questions and clarify concerns.

Moving beyond feasibility, quantitative answers received from professionals provide also some interesting insights on the intervention, as they highlighted some associations with changes in the satisfaction of professionals and their time management regarding specific activities. Although limited, these findings suggest that integrating case managers into palliative care settings may simplify care processes and improve overall job satisfaction among healthcare providers.

Medical staff, who interacted most frequently with the case manager, reported an average satisfaction score of 6.75. This highlights the potential of case management models to alleviate some administrative and coordination burdens on physicians, thereby improving their well-being and reducing burnout in palliative care environments. In this sense, between T0 and T1, palliative therapists reported an average reduction of 27.8 minutes per day in the time dedicated to phone calls, compared to an increase of 1.12 points in the perceived satisfaction. These data are consistent with the activities carried out by the case manager since its introduction, acting as a telephone reference for patients in home care, but partially disagree with the previous literature.<sup>12</sup> Strupp reported a positive effect of case managers on patients' requests for telephone information from nurses, but its influence on physicians' phone calls was not as prominent.<sup>12</sup> In our context, outpatient nurses do not interact with patients through phone calls, which remains the responsibility of medical staff, and the introduction of CM has reduced the workload of palliative therapists.

Similarly, the time dedicated to compiling reports and administrative documentation was reduced on average by 13.7 minutes per day, corresponding to an improvement of 1.5 points in terms of satisfaction. Given the increasing administrative demands faced by physicians, particularly in oncology,<sup>31-34</sup> these findings highlight the potential role of case managers in reducing non-clinical workload and improving satisfaction. This could play a critical role in mitigating burnout,<sup>35</sup> a growing concern in palliative and oncology care worldwide.

Professionals reported an improvement of one point or more in satisfaction with diagnosis, completion of intake documentation, meetings and handovers, and consultations, even though the time allocated to these activities remained constant or slightly increased. As some of the activities of the proposed case management model included a complete assessment of patients and related reporting and follow-up. The observed variation in satisfaction likely reflects an improvement in communication and information about patients, which influenced how professionals perceived their tasks, even without saving time. Some studies<sup>36</sup> support these findings and endorse the importance of NCM in coordinating information and improving communication with patients.

Regarding nursing activities, time saving can be observed with respect to nursing anamnesis and coordination and organization of care. The NCM interviews with patients and related reporting likely resolved part of the nursing documentation. Similarly, the NCM facilitation and coordination of care may have influenced nursing activities,<sup>37</sup> leading to daily time savings and related improvements in perceived satisfaction (+2.5 points). The interviews with patients next of kin did not, however, highlight any particular time savings following the introduction of the case manager, but only an improvement in the professionals' satisfaction (+2.5 points). This could depend on the greater information on the family

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context of the patients shared by the CM with colleagues,<sup>38, 39</sup> which may have enhanced the subsequent conversations between the nursing staff and the caregivers, allowing them to carry out a more targeted and satisfactory intervention. Similar outcomes were reported by Strupp (2018).<sup>39</sup>

All professionals who interacted with the case manager reported high satisfaction with its performance (range 6.75-10); physicians and nurses, who shared the highest interactions with the case manager, reported only a slight decrease in satisfaction in team interviews and multidisciplinary meetings, which did not benefit from CM involvement. Although previous literature<sup>40</sup> has documented the beneficial impact of case managers (CM) on multidisciplinary integration in cancer care, the findings remain heterogeneous and depend on the adopted multidisciplinary model, which may be ineffective in the circumstances of this study.

## Limitations

The findings of this study must be interpreted in light of certain limitations. The small sample size may affect the generalizability and interpretation of the results and prevent the use of statistical tests to evaluate the significance of the collected data. Given the exploratory purpose of this pilot study, obtaining robust results was not the aim of the current analysis. Therefore, data should be considered descriptive and indicative of possible trends rather than claims of statistical correlation. Nonetheless, to mitigate this limitation, we ensured rigorous data collection processes and employed consistent measurement tools across time points.

Secondly, the case management model was not designed to engage all professionals, making data from administrative staff and head nurses less relevant and limiting analysis. Future research should include these roles in multidisciplinary models to increase effectiveness and relevance.

## CONCLUSIONS

Most professionals considered the proposed study design feasible and adequate to evaluate the impact of a NCM intervention on healthcare providers' and administrative staff's time management and task-related satisfaction in an outpatient palliative care setting.

Following the introduction of a NCM, the time spent on telephone calls and administrative documentation was reduced, particularly for the medical staff, leading to increased job satisfaction among team members. These findings support the impact of NCM in facilitating communication and coordinating care within palliative care units, but although they find partial confirmation in previous literature, they have to be considered with caution.

While promising, this study primarily serves as a preliminary investigation. The small sample size and the specific case management model employed limit the generalizability of results. However, these findings highlight the need for larger and more structured studies involving diverse populations and activity models. Such research would provide valuable quantitative data, enabling a more comprehensive analysis of the effectiveness of case management interventions in palliative care, ultimately enhancing the quality of care provided to patients and families.

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159

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