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# Humanization in palliative care through art: A Social Return on Investment (SROI) analysis of ProArt

## Humanización en coidados paliativos a través da arte: unha análise de Retorno Social do Investimento (SROI) do programa ProArt

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## Abstract

ProArt is a co-designed humanization programme that uses artistic activities and environmental transformation to enhance the experience of patients and families in a palliative care unit. This study evaluates its social impact through a Social Return on Investment (SROI) approach including patients, relatives, professionals and volunteers. The programme generated measurable improvements in emotional well-being, communication, personal relationships and the overall care environment, as reported by all stakeholder groups. The total social value created amounted to €1,076,855.42 compared with an investment of €129,405.78, yielding an SROI of €8.32 for each €1 invested. A comprehensive sensitivity analysis varying proxy values and attribution parameters confirmed the robustness of the findings, with SROI ratios ranging from €6.51 to €10.64. These results indicate that art-based humanization strategies can deliver substantial social value in palliative care and may represent an effective approach to improving the quality of end-of-life care.

**Keywords:** SROI; Humanization; Palliative care; Social value; Arts in health.

## Resumo

ProArt é un programa de humanización deseñado conxuntamente que utiliza actividades artísticas e a transformación da contorna para mellorar a experiencia dos pacientes e as súas familias nunha unidade de coidados paliativos. Este estudo avalía o seu impacto social mediante un enfoque de retorno social do investimento (SROI) que inclúe a pacientes, familiares, profesionais e voluntarios. O programa xerou melloras notables no benestar emocional, a comunicación, as relacións persoais e a contorna asistencial en xeral, segundo informaron todos os grupos de interese. O valor social total creado ascendeu a 1.076.855,42€, fronte a un investimento de 129.405,78€, o que supón un SROI de 8,32€ por cada euro investido. Unha análise de sensibilidade exhaustivo que que variou os valores *proxy* e os parámetros de atribución confirmou a solidez dos resultados, con cocientes SROI que oscilaban entre 6,51€ e 10,64€. Estes resultados indican que as estratexias de humanización baseadas na arte poden achegar un valor social substancial aos coidados paliativos e poden representar un enfoque eficaz para mellorar a calidade dos coidados ao final da vida.

**Palabras chave:** SROI; Humanización; Coidados paliativos; Valor social; Arte na saúde.
**JEL classification:** I10; C93; I31.



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# 1. INTRODUCTION

Budgetary constraints and the increasing demand of healthcare services due to an ageing society makes indispensable to establish priorities in the expenses. Establishing these priorities means to choose between different programs or services. To do so, it is mandatory to increase the patients' participation in the making decision process and to use different tools to make it in an objective manner.

In recent decades, the concept of health and the tools to ensure it have gradually shifted from a biomedical focus, treating diseases in affected organs, to a psychosocial approach, considering health in a more complex and multidimensional way. This change has introduced the concept of patient-centered care, designing the healthcare system around the patient's preferences, values, and needs (Gola et al., 2016).

User-centered environments should be applied to all architectural projects, especially in care spaces like pediatric hospices, due to the complexity of variables in the planning phase. Social and psychological disciplines have contributed to evidence-based design, demonstrating how the physical and socio-physical environment influences user behavior and well-being. The environment can positively or negatively impact the living conditions and quality of life of individuals, social groups, and communities. Thus, the environment is defined as prosthetic, essential for the environmental well-being of users, including patients, family members, and healthcare workers. Some authors highlight the building's flexibility to adapt to the specific needs of each patient, the proximity to hospitals for intensive care, and the importance of common and green areas for the humanization of space and the well-being of users (Gola et al., 2016).

This article presents the results of the impact evaluation of a project focused on humanizing through art in palliative care, aiming to analyze its effectiveness and benefits for patients and their families. Humanization in healthcare, particularly in the context of palliative care, addresses not only physical well-being but also emotional and spiritual well-being, which are crucial aspects for comprehensive care (Chatterjee & Noble, 2020).

Conventional economic evaluation frameworks, such as cost-effectiveness and cost-utility analysis based on QALYs, are widely used to inform resource allocation decisions in healthcare. However, their adequacy in end-of-life and palliative care settings has been increasingly questioned. At this stage of life, survival gains and health-related quality of life may be less relevant than outcomes such as dignity, emotional well-being, psychosocial support, and effects on relatives and caregivers (Coast & Lavender, 2009; Normand, 2009). As a result, the value generated by palliative care interventions may be systematically underestimated when assessed exclusively through conventional health economic metrics. Recent contributions highlight the need to complement standard value-assessment frameworks with approaches capable of capturing broader social dimensions of value in palliative care, explicitly pointing to Social Return on Investment (SROI) as a suitable methodological alternative (Monton et al., 2025).

ProArt was collectively designed to humanize care in the palliative care unit of Hospital Santa Clotilde in Santander. It was implemented in a 120-bed surgical-medical hospital that offers humane, personalized and comprehensive care, taking care of physical, psychic, social and spiritual aspects. The palliative care unit has 20 beds (16 of them in single rooms).

The care team in a palliative care unit set out to develop an intervention to improve the quality of care and humanize during the care process. ProArt is based on the Porter's concepts (Porter & Olmsted, 2006). It provides not only efficiency in the delivery of care but

emotional and spiritual well-being for patients. Moreover, the palliative care unit of Santa Clotilde Hospital (Santander/Cantabria, Spain) is engaged with the patient-centered care. Patients take part of the decision-making process as a more efficient and effective manner of delivering care (Barry & Edgman-Levitan, 2012; de Bronkart & Sands, 2014).

To achieve this, they relied on a consultancy specializing in experience design through Design Thinking, a methodology that involves various stakeholders in the ideation and prototyping process to improve the targeted process. Using innovative user-centered design methodologies, such as the "empathy map" and the "patient journey map," the needs and expectations of each stakeholder were identified. These methodologies enabled the prototyping of the final art-based intervention. The program included weekly art workshops, the creation of comfortable spaces, and the installation of artworks in the hospital's rooms and common areas. Patients and their families were consulted about their preferred artistic activities. Each session, with no restrictions on the number of participants, generally included between 5 and 10 people and lasted for two hours.

The objective of this project is to carry out an impact evaluation from a social perspective of the ProArt intervention on the stakeholders involved.

Our main contributions are the following: firstly, we provide new evidence by measuring the social return on the investment made in a humanization project in the palliative care unit of Santa Clotilde Hospital. Secondly, we present results including the patients' perspective and their financial impact. Thirdly, the relevance of artistic activities on patients' life.

The paper is organized as follows. The second section is based on the literature review. Third section is devoted to the theoretical framework where methodology and data are presented. The fourth section is focused on the empirical analysis. The discussion of the results can be found in section five. The final one presents the conclusions.

## 2. LITERATURE REVIEW

A hot debate is still open in the field of the economic evaluation of palliative care services. Traditionally, in palliative care studies, the QALYs have been used as a way of measuring the effectiveness of the programs. The estimation of the results must be different since palliative patients have different characteristics from others: their health status is less relevant, and their time is not valued in the same way at the end-of-life (Coast & Lavender, 2009; Normand, 2009). Moreover, there are some interventions that are desirable by these patients and that do not generate enough QALYs to be cost-effective (Hughes, 2005). Other studies argue that QALY methods are still the best in relocating resources according to the preferences (Round, 2012). Nevertheless, the fact that intangible benefits are more relevant than survival gains means that other additional factors to the number of life years that are gained must be considered.

The Palliative Care Yardstick (PALY) is based in the QALY framework and includes other intangible variables (Normand, 2009). Some other variables that should be taken into consideration are dignity or emotional well-being (Chochinov et al., 2011; Wilson et al., 2007). New approaches should include other measurements like affection, emotional well-being, power in the decision making or dignity (Sutton & Coast, 2014). The promotion of patient dignity in the provision of palliative care is a key variable (Arantzamendi et al., 2016). Moreover, there is evidence of the impact some intangible values like gratitude have on the stakeholders involved (patients, relatives and health professionals) (Aparicio et al., 2019a; Aparicio et al., 2019b).


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Additionally, not only should more intangible measurements be included but more stakeholders in the process like relatives or health professionals (O'Hanlon et al., 2018). Thus, instruments like the EQ-5D are not relevant either since they are not able to evaluate the impact of these new measurements. The main problem is the difficulty in the assessment of the new facts that should be included in the process.

The evaluation approach for this project is inspired by the strategies adopted by the United Kingdom and Australia, which have implemented robust systems to evaluate public policies from a social value perspective. These nations have developed Social Value Banks, tools that enable the standardization and tracing of social impact evaluations, ensuring transparency and comparability of results (Nicholls et al., 2012). In the United Kingdom, the Social Value Act of 2012 has been a catalyst for public entities to consider social value in their procurement decisions, while in Australia, the Social Impact Investing Taskforce has promoted investment in projects with clear social returns (Australian Government, 2020; Cabinet Office, 2019).

According to the value strategy of Osakidetza (Basque Country, Spain), it is essential to establish actions aimed at educating professionals and managers in the culture of value, promoting the importance of recording patient outcomes, as well as raising awareness among professionals and patients to promote the culture of value, prioritizing the approach to diseases under value-based care criteria. Regarding the evaluation of health outcomes, it is recommended to redesign care processes to orient them towards value creation, incorporating the measurement and evaluation of PROMs and PREMs in addition to clinical outcomes (CROMs) (Osakidetza, 2023).

The SROI methodology was developed in 1990 in San Francisco (California). It measures in monetary units the social value generated by an investment (Nicholls et al., 2012). It can be used to evaluate the investment in health programs. Another benefit of using this methodology is that allows allocating resources in an efficient and effective way (Maier et al., 2015). The SROI method is an effective tool to measure the impact of investments over individuals' well-being and health status (Leck et al., 2016). Moreover, it considers tangible and intangible variables and evaluates the impact on every stakeholder involved in the process (Ivanova et al., 2017). This makes the SROI methodology a very useful tool for evaluating health interventions.

The reviewed studies reveal that SROI is particularly useful for evaluating community engagement programs that involve disadvantaged groups (Dates et al., 2015). NICE conducted a review on SROI methodology evaluations within the framework of "Community Engagement – approaches to improve health and reduce health inequalities," concluding that the use of validated well-being measures and willingness-to-pay approaches applied to the assessment of social and community impacts at both individual and community levels is recommended. This would provide a more robust basis for the results. It also recommends the participation of a wide range of stakeholders throughout the evaluation process. This includes the identification of relevant outcomes, the use of appropriate financial proxies, and adjustments for the absence of control groups to ensure the accuracy of the results. Regarding clarity and transparency, it recommends presenting cost information in a clear and detailed manner, clearly stating the number of beneficiaries and calculating the benefits in a way that allows for the relatively easy replication of the values attached to individual benefits. Lastly, to improve comparability between studies, it is necessary to use consistent time frames and standardized methods for selecting stakeholders and converting qualitative results into quantitative valuations.

This method has been used to measure the impact of different health and social programs. The Craft Café (a program based on art activities whose objective is to reduce isolation and loneliness in older adults) is evaluated through SROI. The result is that £8.21 are gained per £1 invested (August et al., 2011). Other health studies analyzes the return of new therapeutic approaches to the following health problems: psoriasis, rheumatoid arthritis, multiple sclerosis and cardiac insufficiency (González et al., 2016; Merino et al., 2019; Merino et al., 2017, 2018). These examples show the power of the methodology: it allows to account for financial results and to analyze the program effect on every stakeholder and not only on the patient.

## 3. MATERIALS AND METHODS

The impact analysis of the ProArt intervention will be conducted using the Social Return on Investment (SROI) methodology, which is a specific cost-benefit analysis approach. The study adopts a retrospective Social Return on Investment (SROI) evaluation design, based on a before–after framework without a control group. Outcomes were assessed using stakeholder-reported information collected through ad hoc questionnaires administered after the implementation of the ProArt intervention and compared with the situation prior to its introduction in the palliative care unit. These questionnaires are provided as supplementary material in the original language of administration (Spanish).

Given the characteristics of the setting and the nature of the intervention, the inclusion of a parallel control group was not feasible. This methodology will allow for a comprehensive and systematic evaluation of the social and economic impact of the ProArt intervention, providing valuable information for decision-making and continuous improvement of the program. The main steps of this method described in the SROI Guide investment (Nicholls et al., 2012) are:

### 1. Establish the scope and identify stakeholders

In this initial phase, the scope of the analysis will be determined and the stakeholders involved in the ProArt intervention will be identified. These may include patients, families, healthcare professionals, and other relevant actors.

In this initial phase, the research team, along with the care team, decided to establish a one-year temporal scope and involve the stakeholders who were directly accessible and involved in the project: patients, families, volunteers, and medical professionals. The institution and the managing entity of the artistic program were excluded due to the difficulty of defining the impact of ProArt from the rest of their daily activities.

### 2. Map outcomes

The expected outcomes of the intervention for each stakeholder group are identified and mapped. This is achieved through interviews, focus groups, and questionnaires, collecting both qualitative and quantitative data on the experiences and perceptions of the participants. The expected changes were defined based on the preferences and experiences of the involved stakeholders, as identified in the pre-evaluation phase developed using the Design Thinking methodology. In this phase, the activities to be carried out, the expected short- and medium-term changes, as well as the barriers and difficulties to achieving them, were identified.


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## 3. Evidence outcomes and assign them a value

Data will be collected to evidence the outcomes identified in the previous step. A data collection notebook was designed that included the usual scales used according to the unit's clinical practice protocol, and which allowed the results of the intervention to be compared with those obtained in the service in the 6 months prior to implantation. Different objective data were collected: the average stage (in days), the pain level, drugs consumption, EDMONTON scales (pain, anxiety, etc.), the Palliative Outcome Scale (POS) and the Support Team Assessment Schedule (STAS).

In order to evaluate from the perspective of results reported by the patient, an ad hoc questionnaire was designed based on the insights collected in the work session, prospectively evaluating in the cohort of subjects of the experimental group the emotional and social impact of the intervention through an online questionnaire. Subsequently, a monetary value will be assigned to these outcomes using financial indicators, market studies, and other economic valuation methods.

## 4. Establish the impact

The net impact of the intervention will be analyzed, adjusting the data to consider factors such as the effect of the intervention in the absence of ProArt, the duration of the impact, and any attribution to other causes. In order to calculate the attribution and dead weight on each of the outcomes, an ad hoc survey was designed, so that all study participants evaluated from their perspective in what proportion the intervention had or had not contributed to achieving the impact detected.

To collect the outcomes' indicators, online surveys were conducted to patients, family, professionals and volunteers. In order to carry out the proxy identification, we defined and estimated the proxies' costs of each outcome, besides considering the deadweight, attribution and drop off of each one. Deadweight responds to the question: 'How much of the outcome would still be attained without the activity delivered? Attribution responds to the question: 'Who else contributed to the attainment of the outcome?

In order to calculate the percentage of the outcome that would be attained even in the absence of the activity delivered, we carried out an online survey of each stakeholder group. Proxy costs were carefully selected through discussion between the implementation and evaluation teams and with reference to research evidence. We specifically conducted the following calculations:

i. We multiplied the cost of the financial proxy by the number of stakeholders experiencing each outcome to calculate the impact for each stakeholder group.

ii. We subtracted from the result a percentage of death-weight, attribution and drop off in each indicator.

iii. We finally calculated the SROI ratio (impacts value/inputs value).

For the valuation of outcomes, we assigned financial proxies derived exclusively from observable sources. Hospital cost data were used for clinical outcomes (e.g., analgesic use, emergency care), market prices were used for activities comparable to those delivered by ProArt (such as the cost of a standard art workshop), and average hourly wages published by the National Statistics Institute were used to value changes in available time for relatives

and volunteers. This approach avoided hypothetical valuations and ensured that all proxies reflected realistic and verifiable costs.

To adjust for external influences, the parameters for deadweight and attribution were obtained directly from the ad hoc, self-administered questionnaires completed by patients, relatives, professionals and volunteers. These included specific items asking whether the observed changes would have occurred without the intervention and what proportion of the improvement was attributable to ProArt. Stakeholders consistently reported that the outcomes would not have taken place in the absence of the programme; for this reason, deadweight was set at 0%. The mean percentage of improvement attributed directly to ProArt across respondents was 75%, and this value was applied uniformly as the attribution adjustment.

Following SROI guidance, drop-off adjustments apply only to outcomes expected to persist beyond one year. Given the characteristics of the palliative population and the time horizon of the project, none of the outcomes extend beyond this period; therefore, drop-off was not applied.

### 5. Calculate the SROI ratio

Finally, the SROI ratio will be calculated by dividing the total value of the benefits by the value of the investments made in the ProArt intervention. This ratio will provide a clear measure of the social return generated for each monetary unit invested in the project. All the calculations yield to the calculation of a ratio with the following form:

$$\text{SROI} = \frac{\text{Total social value generated by ProArt}}{\text{Total investment made}}$$

A positive ratio would mean that the total social value generated outweighs the total investment made. Moreover, it provides a simple interpretation of the results in terms of the profit per euro invested. Finally, a sensitivity analysis was performed by varying financial proxy values ($\pm 10\%$) and attribution parameters to test the robustness of the SROI ratio.

## 4. RESULTS

The investment made in ProArt allowed the hospital to host weekly artistic workshops and redesigning spaces. Figure 1 shows one of the activities done by patients in the workshops. In this activity, patients work with their relatives to build a sculpture cast that represents their hands.

**Figure 1. Artistic workshop**



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Moreover, ProArt redesign of some hospital settings to make them more comfortable for patients and relatives. Figure 2 and 3 show the patients' entrance and relatives' room before and after the intervention, respectively. The new entrance included a hand-made tree that was created with the patients' help. The paper-made birds were built in the artistic workshops.

The new relatives' room was humanized to make it more comfortable for relatives. Before the intervention, this room only was occupied by some chairs and vending machines. After ProArt, the room was refurbished. It included more comfortable chairs, a sofa and a little kitchen for relatives. Moreover, a little "bond wall" was installed. Patients and relatives could take a piece of cloth to write their feelings and expectations and hang in the wall.

**Figure 2. Patients' entrance (Before and after the intervention)**

**Figure 3. Relatives' room (before and after intervention)**

A theory of change was developed according to the expected changes experienced by the stakeholders as a consequence of their involvement in the study. Inputs, outputs and outcomes were calculated separately for each of the different group of stakeholders.

Funders and host institution were only included for the input they invested for the delivery of the art intervention. The coordinating organization, which implemented and managed the program and commissioned the complete evaluation, was excluded from the scope of analysis.

In terms of the identification of stakeholders, we were included every patient hospitalized during the period of study (n=70), one relative per patient (n=70), health professionals (n=11), volunteers (n=5) and the host institution (n=1). The size of our stakeholder groups reflects the structural characteristics of the setting where ProArt was implemented. Hospital Santa Clotilde is a 120-bed centre with a 20-bed palliative care unit; therefore, the total

number of patients eligible for inclusion during the study period (n=70) corresponds to the full population of individuals admitted to the unit. Similarly, the number of participating relatives (n=70), health professionals (n=11), and volunteers (n=5) is not the result of sampling, but the complete census of all individuals directly involved in the intervention.

The palliative population in Cantabria is limited in size, and units of this scale naturally generate relatively small but exhaustive cohorts. Consequently, the study prioritises full representativeness within the unit over statistical sampling considerations. Although the implementing institution was considered a stakeholder as the entity financing and hosting the programme, it was not included as a beneficiary in the SROI calculation. Potential institutional outcomes, such as reputational gains or fundraising effects, were deliberately excluded to avoid inflating the estimated social value through benefits that are difficult to attribute and monetise reliably. This conservative decision was taken to prioritise outcomes directly experienced by patients, relatives, and frontline stakeholders, and to reduce the risk of overestimation. The results should therefore be interpreted as reflecting the social value generated for non-institutional beneficiaries exposed to ProArt in this real-world clinical context. Table 1 summarises stakeholder groups and their participation in the programme.

**Table 1. Stakeholders included in the analysis.**

| *Stakeholder* | *Reason to be included* | *Participation* |
|---|---|---|
| Patients (n=70) | They are the cornerstone of ProArt. | Provide information by answering the questionnaires and participating in the interviews |
| Relatives (n=70) | An improvement in the life quality of the patients may affect their relatives' well-being. Moreover, one relative per patient participates in the activities. | |
| Health professionals (n=11. Including 2 psychologist, 1 doctor, 5 nurses, 1 therapist, 1 social worker and 1 coordinator) | They are the care delivers. Moreover, they are in charge of collecting data. | Provide information by the collecting data through personal interviews and different scales. |
| Volunteers (n=5) | They help the patients and promote their participation in the art activities. | Provide information by answering the questionnaires and participating in the interviews |
| Host Institution (Hospital Santa Clotilde) | Hospital Santa Clotilde provides the space and it is in charge of the hospital improvement jobs. | No intervention in the analysis |

**Table 2. Map impact: inputs and outputs associated with each stakeholder group.**

| *Stakeholder* | *Inputs* | *Value (€)* | *Outputs* |
|---|---|---|---|
| Patients | Participation in the activities (time) | NA | 1 artistic workshop per week; pieces of art selection for the art exhibition of Venancio Blanco; structural changes in the palliative care unit and the patients and relatives room |
| Relatives | Participation in the activities (time) | NA | |


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| *Stakeholder* | *Inputs* | *Value (€)* | *Outputs* |
|---|---|---|---|
| Health professionals | Data collection through personal interviews and different scales (time) | 56,114.64 € | |
| | Artistic training (time) | 9,255.04 € | |
| Volunteers | Participation in the activities by helping patients (time) | 9,541.80 € | |
| | Artistic training (time) | 1,884.80 € | |
| Host Institution | Financing the hospital improvement jobs (money) | 32,609.50 € | |
| | Financing Venancio Blanco art exhibition | 20,000.00 € | |
| *TOTAL* | 129,405.78 € | | |

*Source: Authors' elaboration using the data provided by Hospital Santa Clotilde*

Table 2 resumes the inputs and outputs by stakeholder. An input can be defined as every resource that is necessary to carry on the project. Thus, patients and relatives' time is not included in this stage since their participation is not mandatory for ProArt execution. On the other hand, the participation of the health professionals, volunteers and Hospital Santa Clotilde is indispensable. Health professionals provide six hours per week to collect/analyze the data. Volunteers provide their time to develop their volunteering activities. Moreover, both groups have attended to different courses to improve their artistic expertise. Finally, Hospital Santa Clotilde has funded the unit improvement jobs and the art exhibition. As a result, weekly workshops conducted by artistic educators of the Venancio Blanco Foundation were carried out, as well as structural changes in the palliative care unit, designing a patient room, and turning the unit into a painting exhibition of the artist.

Carrying out the proposed methods to the identification of the outcomes, we followed Schalock and Verdugo Alonso's (2003) quality of life scale, the stakeholders defined results related to 6 of the 8 dimensions in which they detected changes (based on "theory of change"): emotional, physical and material well-being; self-determination; interpersonal relationships and social inclusion. The changes generated in the fields of personal development and rights are considered non-quantifiable. Non-quantifiable outcomes were also detected: personal and rights development (patients), the implementation of systematic evaluation (professionals) and commitment and compliance with institutional values (Hospital Santa Clotilde).

Finally, the SROI ratio is calculated by dividing the total value of the benefits by the value of the investments made in the ProArt intervention. This ratio will provide a clear measure of the social return generated for each monetary unit invested in the project. Table 3 Presents the outcomes, indicators and the financial proxies used to calculate the impact of ProArt.

Hospital and funders invested 52,609.50€ to run the program during the last 4 months of 2018 until September 2019. This funding covered all arts professionals' inputs, civil works and furniture, and all material necessary to develop the project. Volunteers invested 11,426.60 euros related to hours of work with patients and relatives at the artistic workshops. Health

professionals invested 65.369,68 euros to manage the program and to collect data and surveys related to the program evaluation.

Over the year, 70 palliative patients participated at least once in the artistic workshops; 210 palliative patients enjoy the new "living room" at the palliative unit care with their relatives; 5 volunteers got involved in the workshops and 11 health professionals got involved in the project.

Palliative patients and their relatives reported positive feelings toward the art activities they engaged in: "I enjoyed it so much", "workshops have given meaning to my mother's the end of life", "time passes faster", "and I spent the week thinking about what I'm going to do in the next workshop".

POS and STAS scale data were collected and compared between before and after the intervention. Data processing was carried out using SPSS software version 22. We analyzed the frequencies/percentages associated to qualitative variables and correlation between POS scale questionnaires. The following results were obtained: a reduction of patients suffering pain (12.3%), patients with intense, severe or unbearable symptoms (7%), patients with anxiety (9%); relatives with anxiety (17.8%). Besides, an increase in the number of patients improving their communication with professionals (5.2%), their relatives (37.4%) and professionals improving communication with their colleagues (25.7%) and patients and relatives (27.7%).

Table 3 also reports the empirical sources used for each financial proxy and the adjustment parameters applied in the SROI model. Presenting this information alongside the outcomes facilitates the interpretation of how monetary values were assigned and how external influences were accounted for in the calculation. As detailed in the Methods section, proxies were obtained from observable and verifiable sources —such as hospital cost data, average hourly wages or market prices for comparable activities— while deadweight was set at 0% and attribution at 75% based on stakeholder responses. Drop-off was not applied, as outcomes in this palliative care context do not extend beyond one year.

**Table 3. Quantifiable outcomes, indicators, and financial proxies**

| *Stakeholder* | *Quantifiable outcomes* | *Indicator* | *Financial proxy* | *Value (€)* | *Deadweight* | *Attribution* | *Drop off* |
|---|---|---|---|---|---|---|---|
| Patients | Emotional well-being | Patients (%) that improve their emotional well-being. | QALY (Vallejo-Torres et al., 2018) | 183,260.00 € | 0% | 75% | Not Applicable |
| | | Patients (%) declaring a reduction in their anxiety level | Reduction in the care delivery cost* | 1,716.35 € | 0% | 75% | Not Applicable |
| | Physical well being | Patients (%) needing emergency treatments | Reduction in the cost associated* | 275.28 € | 0% | 75% | Not Applicable |
| | | Patients (%) declaring a reduction in their pain level | Cost reduction due to less drug consumption* | 796.94 € | 0% | 75% | Not Applicable |



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| *Stakeholder* | *Quantifiable outcomes* | *Indicator* | *Financial proxy* | *Value (€)* | *Deadweight* | *Attribution* | *Drop off* |
|---|---|---|---|---|---|---|---|
| | | Patients (%) improving their results in the POS scale | QALY (Vallejo-Torres et al., 2018) | 124,800.06 € | 0% | 75% | Not Applicable |
| | | Patients (%) declaring the pain level associated to their symptoms has been reduced (from intense, severe or unbearable to moderate) | Cost reduction due to less drug consumption* | 139.55 € | 0% | 75% | Not Applicable |
| | Material well-being | Patients (%) feeling their time passes faster at hospital | Time value (van den Berg et al., 2017) | 5,129.60 € | 0% | 75% | Not Applicable |
| | Personal relationships | Patients (%) improving their personal relationships | Meeting relatives every day (value) (Powdthavee, 2008) | 183,992.78 € | 0% | 75% | Not Applicable |
| | Self-determination | Patients (%) improving their decision making process | Cost of a similar artistic workshop (Council of Torrelavega, 2019) | 2,800.00 € | 0% | 75% | Not Applicable |
| | Social inclusion | Patients (%) participating in the activities | Cost of a similar artistic workshop (Council of Torrelavega, 2019) | 18,368.00 € | 0% | 75% | Not Applicable |
| Relatives | Emotional well-being | Relatives (%) that improve their emotional well-being. | QALY (Vallejo-Torres et al., 2018) | 261,800.00€ | 0% | 75% | Not Applicable |
| | | Relatives (%) declaring a reduction in their anxiety level | QALY (Vallejo-Torres et al., 2018) | 46,600.40 € | 0% | 75% | Not Applicable |
| | Material well-being | Relatives (%) feeling their time passes faster at hospital | Salary per hour (Instituto Nacional de Estadistica, 2020) | 2,522.67 € | 0% | 75% | Not Applicable |

| *Stakeholder* | *Quantifiable outcomes* | *Indicator* | *Financial proxy* | *Value (€)* | *Deadweight* | *Attribution* | *Drop off* |
|---|---|---|---|---|---|---|---|
| | Personal relationships | Relatives (%) improving their personal relationships | Meeting relatives every day (value) (Powdthavee, 2008) | 551,978.35 € | 0% | 75% | Not Applicable |
| | Social inclusion | Relatives (%) participating in the activities | Cost of similar artistic workshop (Council of Torrelavega, 2019) | 22,960.00 € | 0% | 75% | Not Applicable |
| Health professionals | Emotional well-being | Professionals (%) having more tasks in their job | Extra hours cost* | 346.36 € | 0% | 75% | Not Applicable |
| | | Professionals (%) suffering less from burnout | QALY (Vallejo-Torres et al., 2018) | 748.00 € | 0% | 75% | Not Applicable |
| | Personal relationships | Professionals (%) improving their teamwork | Cost of a team work workshop (CEGOS, 2019) | 3,570.00 € | 0% | 75% | Not Applicable |
| | | Professionals (%) improving the communication process with their colleagues | Cost of a EQ workshop (emagister, 2020) | 1,143.65 € | 0% | 75% | Not Applicable |
| | | Professionals (%) improving the communication process with their patients | Cost of a EQ workshop (emagister, 2020) | 4,450.00 € | 0% | 75% | Not Applicable |
| | Personal development | Professionals (%) improving their artistic expertise | Cost of similar artistic workshop (Council of Torrelavega, 2019) | 1,188.00 € | 0% | 75% | Not Applicable |
| Volunteers | Emotional well-being | Volunteers (%) that improve their emotional well-being. | QALY (Vallejo-Torres et al., 2018) | 11,968.00 € | 0% | 75% | Not Applicable |
| | Emotional Intelligence (EQ) skills | Volunteers (%) that improve their EQ skills | Cost of a EQ workshop (emagister, 2020) | 3,560.00 € | 0% | 75% | Not Applicable |



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| *Stakeholder* | *Quantifiable outcomes* | *Indicator* | *Financial proxy* | *Value (€)* | *Deadweight* | *Attribution* | *Drop off* |
|---|---|---|---|---|---|---|---|
| | Artistic skills | Volunteers (%) improving their artistic expertise | Cost of similar artistic workshop (Council of Torrelavega, 2019) | 1,485.00 € | 0% | 75% | Not Applicable |
| Hospital Santa Clotilde | Social media impact | Increase (%) in the visits to the Hospital social media | Subscription cost social network tool management (Hootsuite, 2019) | 300.00 € | 0% | 75% | Not Applicable |
| **TOTAL VALUE GENERATED** | | | | **1,435,898.99 €** | | | |

Source: Authors' elaboration using the data provided by Hospital Santa Clotilde
Superscript numerals are the number of the references. Proxies with a * indicates that the data were retrieved from Hospital Santa Clotilde

Table 4 resumes the value generated for every quantifiable outcome after the application of the deadweight. The total social value generated by ProArt was 1,076,855.42 €, while the investment required to develop the Project was 129,405.78 €. After the calculation of the SROI ratio, our results show that per every euro invested in ProArt 8.32€ were generated in terms of social value.

**Table 4. Calculation of the social value generated per stakeholder group**

| *Stakeholder* | *Value per stakeholder* | *Quantifiable outcomes* | *Value per outcome* |
|---|---|---|---|
| Patients | 390,890.10 € | Emotional well-being | 138,732.26 € |
| | | Physical well-being | 94,440.05 € |
| | | Material well-being | 3,847.20 € |
| | | Personal relationships | 137,994.59 € |
| | | Self-determination | 2,100.00 € |
| | | Social inclusion | 13,776.00 € |
| Relatives | 664,396.07 € | Emotional well-being | 231,300.30 € |
| | | Material well-being | 1,892.00 € |
| | | Personal relationships | 413,983.76 € |
| | | Social inclusion | 17,220.00 € |
| Health professionals | 8,584.51 € | Emotional well-being | 820.77 € |
| | | Material well-being | 0.00 € |
| | | Personal relationships | 6,872.74 € |
| | | Personal development | 891.00 € |
| Volunteers | 12,759.75 € | Emotional well-being | 8,976.00 € |
| | | Emotional Intelligence (EQ) skills | 2,670.00 € |

| *Stakeholder* | *Value per stakeholder* | *Quantifiable outcomes* | *Value per outcome* |
|---|---|---|---|
| | | Artistic skills | 1,113.75 € |
| Hospital Santa Clotilde | 225.00 € | Social media impact | 225.00 € |
| TOTAL SOCIAL VALUE GENERATED (1) | | 1,076,855.42 € | |
| TOTAL VALUE OF THE INVESTMENT (2) | | 129,405.78 € | |
| $\text{SROI} = \frac{\text{TOTAL SOCIAL VALUE (1)}}{\text{TOTAL INVESTMENT (2)}}$ | | 8.32€ per 1€ invested | |

*Source: Authors' elaboration using the data provided by Hospital Santa Clotilde*

To assess the robustness of the SROI results, a comprehensive sensitivity analysis was conducted varying the financial proxies by $\pm 10\%$ and adjusting attribution between 65% and 85%. As shown in Table 5, the SROI ratio remained positive under all scenarios, ranging from 6.51 in the most conservative case to 10.64 euros returned per euro invested in the most optimistic scenario. These findings indicate that the overall conclusions are stable and do not depend critically on small changes in valuation assumptions or attribution estimates.

**Table 5. Sensitivity analysis of the SROI ratio under alternative assumptions**

| *Scenario* | *Proxy values* | *Attribution* | *Total social value (€)* | *SROI* |
|---|---|---|---|---|
| **Base case** | Observed values | 75% | 1,076,855 | **8.32** |
| A. +10% proxies | +10% | 75% | 1,184,540 | **9.15** |
| B. –10% proxies | –10% | 75% | 969,170 | **7.49** |
| C. Attribution 65% | Baseline | 65% | 933,926 | **7.22** |
| D. Attribution 85% | Baseline | 85% | 1,218,635 | **9.42** |
| E. Worst case | –10% proxies | 65% | 842,810 | **6.51** |
| F. Best case | +10% proxies | 85% | 1,376,330 | **10.64** |

## 5. DISCUSSION

In the field of pediatric palliative care, Gola et al. (2016) studied the impact of architecture on the quality and well-being of patients. Their research underscores the influence of the built environment on human behavior and the predisposition to healing. The authors highlight that a multidisciplinary approach and structured processes are required to transform findings into design guidelines that adequately meet the needs of patients, families, professionals, and volunteers involved. In this regard, the design process of Proart spaces and its validation reaffirm the effectiveness of the process and the impact of transformation on the emotional well-being of those involved (Gola et al., 2016).

The mechanisms through which creative expression exerts its effects in palliative care help to contextualize the outcomes observed in ProArt. Evidence from neuroscience and creative arts therapies shows that engaging in artistic activities activates neural circuits involved in emotional regulation, particularly prefrontal–amygdala pathways, thereby


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supporting anxiety modulation and adaptive coping (Barnett & Vasiu, 2024; Abbing et al., 2019). Creative work also facilitates symbolic externalization of difficult emotions and promotes self-reflection, which may explain the reductions in anxiety and emotional distress reported by participants (de Witte et al., 2021). Art-making has been associated with improved autonomic regulation —including increased heart-rate variability— and enhancements in executive functioning, contributing to better stress management (Sandmire et al., 2016; Liu et al., 2024). Additionally, art workshops create a safe non-verbal space that supports interpersonal connection, fosters empathy and strengthens communication, particularly in contexts where emotional expression is challenging (Macdonald et al., 2023; Castellotti et al., 2025). Taken together, these neuroemotional, cognitive and social mechanisms may help explain the breadth of psychological and relational outcomes generated by ProArt.

When comparing ProArt with other non-pharmacological interventions used in palliative care, several points of convergence and differentiation emerge. Art-based programmes, including art therapy and artist-facilitated engagement, have shown reductions in anxiety and emotional distress and improvements in identity, communication and social connection (Collette et al., 2021; Lee et al., 2021; Lin et al., 2024). Music interventions can similarly reduce pain and anxiety and enhance psychological well-being, although their effects may be more transient and less relationally focused (Peng et al., 2019; Warth et al., 2015). Spiritual care interventions, including dignity-conserving approaches and structured spiritual support, can strengthen meaning and existential well-being but depend on accurate assessment of individual needs (Chochinov, 2002; Puchalski et al., 2014). In contrast, ProArt integrates creative participation, relational engagement and visible environmental transformation into a single multidimensional structure, which may help explain the broader psychological, social and spiritual outcomes observed in our SROI analysis.

The World Health Organization published in 2017 a positioning document with the aim of "Highlight the relevance of SROI to guide investments in health and well-being in the context of the implementation of the 2030 Agenda for sustainable development in general, and in the framework of the European health policy 2020 in particular (Hamelmann et al., 2017).

There are more studies applying SROI analysis to an arts-based intervention for people with dementia and other mental disabilities, but not in palliative patients. Decision makers are seeking wider evaluation methods to evidence the costs and benefits of special activities. Patient experience is acknowledged as a key component of quality of care. But it is not enough if only we collect data but not use them to improve care, being unethical (Coulter et al., 2014). In this way, this project focused on results from a design thinking session involving patients, relatives, health professionals and volunteers whose aim was to identify needs and expectations in order to co-create the intervention what is evaluated at this paper.

In relation with the use of QALYs for the evaluation of projects involving palliative care patients, Wichmann et al. (2020) published an experts' perspective on utilizing quality-adjusted life years in cost-effectiveness analysis within palliative care. The results they obtained can be summarized as follows: i) the majority of experts concur that the EuroQol-5D (EQ-5D), the recommended measurement tool for the "Q" component of QALYs, is not suitable for palliative care. A more sensitive tool, possibly based on the capabilities approach, could be utilized or created instead. ii) Time valuation should be integrated into the "Q" component, while linear clock time should remain in the "LY" component. iii) Most experts are in agreement that the current form of the QALY is not appropriate for palliative care.

In this regard, it is also important to be mentioned that while the evidence indicates that improvements in health-related quality of life may be more desirable than increases in

life expectancy (life extensions), the impact of end-of-life patients' age on these preferences remains poorly understood (Reckers-Droog et al., 2021; Yin et al., 2024). That is, evidence on the relative value of life expectancy gains at end-of-life is mixed (McHugh et al., 2020).

The monetisation of intangible dimensions such as dignity, emotional comfort or relational closeness inevitably raises ethical considerations in palliative care. Assigning financial values to these experiences does not aim to reduce their intrinsic importance, but rather to provide a pragmatic mechanism to make visible forms of value that are typically overlooked in economic evaluation. Within this perspective, SROI should be interpreted as a complementary tool, not as a replacement for ethical, clinical or humanistic judgement. Making these outcomes explicit helps inform decision-making while preserving the fundamental sensitivity required in end-of-life care.

This SROI analysis of the Palliative Care and an intervention art program for people with dementia is useful for service providers at all levels, from local governments delivering arts programs, to individual care homes looking at how best to invest their activities budget. The detailed analysis allows readers to interpret which elements of the activities generated the most social impact, which has relevance for service providers worldwide.

The most important limitation of the SROI method to highlight is the right identification of financial proxies adjusted to final outcomes and user preferences, which allow the benchmarking with other evaluations. To overcome this limitation, we conclude that is necessary to carry out an analysis of the willingness to pay of the people involved into the proposed intervention, and their expected profit. As it is usual, consumers and patients compare and examine quality and price before a purchasing decision on goods and services; however, it is difficult for patients to evaluate the price when purchase medical services. The Willingness to pay (WTP) is the most basic method to measure medical service, used widely in the field of medical economics (Yasunaga et al., 2006). Contingent valuation method is a method developed to measure the benefits of service that have no market, such as environmental measures. Despite this, no references were founded in the field of palliative care.

Regarding the replicability of ProArt, several contextual elements should be considered. The programme requires relatively modest economic inputs but depends strongly on institutional support, staff engagement and basic training in art-based facilitation. Organisational culture and openness to humanisation initiatives may influence implementation, as may cultural attitudes toward art and participation. Nonetheless, the core components of ProArt —co-design, creative expression and environmental transformation— are adaptable, and the robustness of the SROI results suggests that similar interventions could be feasibly implemented in palliative care units with comparable resources.

## 6. CONCLUSIONS

The implementation of these strategies in our humanization of care through art project has enabled a meticulous and systematic evaluation, highlighting the tangible and intangible benefits that art can offer in the context of palliative care. Through mixed methodologies, including both quantitative and qualitative techniques, various impact indicators have been measured, such as the improvement in patients' mood, the reduction of family stress, and the perception of a more humane and welcoming environment. Moreover, an innovative economic and social evaluation method (Social Return on Investment) is used. The main strengths are the inclusion of the perspectives from all the stakeholders involved in the delivery of care


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(patients, relatives, professionals and volunteers) and the possibility of analyzing our results in term of social financial returns.

We demonstrate that ProArt has a general positive impact in all of the people involved in the process. Patients and their relatives declare that their quality of life improved thanks to ProArt. Professionals admitted that the project help them to communicate better with patients and the experience reduced the burnout by improving the work environment. Moreover, we provide evidence regarding the important amount of social value (€8.32) generated per every euro invested in ProArt.

Setting up a project like ProArt requires a huge compromise of: foundations, associations, volunteers, health professionals and managers. If managers and professionals want their projects to have a relevant impact on patients, they must consider the opinion of every stakeholder involved in the process. In palliative care, the emotional wellbeing and spiritual wellness are more relevant than the physical one for patients and their relatives. ProArt does not have a short-term impact but a long term one by influencing positively in the later mourning and remembrance. Evaluating the social impact of health interventions, especially if a SROI analysis is carried out, must be done carefully. One of the most difficult steps is the selection of financial proxies. In this selections process, stakeholders' opinions and preferences must be also considered and not only market prices. Including other variables in the contingent valuation technique like the willingness to pay would improve the comprehension of the impact on patients and their relatives. All in all, more projects like ProArt are necessary in other hospitals.

## Authors' contributions

Conceptualization: E.G., A.E., A.R.V.; Methodology, E.G.; Data acquisition, E.G, A.E, A.R.V and J.L Validation, E.G and D.C.P.; Formal Analysis, J.L., C.B.F., E.G., D.C.P.; Data Curation, J.L., E.G.,C.B.F, A.E, A.R.V; Writing – Original Draft Preparation, E.G., J.L.; Writing-review & editing: E.G., D.C.P., C.B.F., J.L., A.E., A.R.V. All authors have read and agreed to the published version of the manuscript.

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