



## Use of Music Therapy in Pediatric Oncology: An Italian AIEOP Multicentric Survey Study in the Era of COVID-19

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Received Date: 14 Oct 2022

Accepted Date: 07 Nov 2022

Published Date: 14 Nov 2022

#### Citation:

Giordano F, Muggeo P, Rutigliano C, Barzaghi F, Battisti L, Coccia P, et al. Use of Music Therapy in Pediatric Oncology: An Italian AIEOP Multicentric Survey Study in the Era of COVID-19. *Clin Oncol.* 2022; 7: 1963.

ISSN: 2474-1663

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### Abstract

**Background:** Music Therapy (MT) is a complementary therapy offered to children, young adults and their families in pediatric oncology and palliative care. We performed a survey to collect information about MT in pediatric oncology in Italy. The outbreak of COVID-19 unavoidably changed the scenario of MT, suggesting some considerations presented in this survey.

**Methods:** 27/32 (84.4%) centers belonging to the Italian Association of Pediatric Hematology and Oncology (AIEOP) completed in 2 different time points (T1 and T2) an online survey on MT, before and after COVID-19 pandemic.

**Results:** Different kinds of music approach were used taking care of patients in 21/27 centers, while in 14/21 (66%) a specific project of MT conducted by a music therapist was present. In 6/14 centers MT activities were delivered for <3 h/week, in 3 centers for >3 and <10 h/week, in the remaining 5 for >3 h/week. MT sessions were in different areas, day hospital or ward (patient rooms, operating rooms, waiting rooms), on an individual basis or by groups. Patients were invited to MT by psychologists, caring physician or nurse, or on equip decision. MT was evaluated with tools self-made by Music therapist in 11/14 centers. After COVID-19 MT has been withdrawal in 3 centers, sessions in the waiting rooms were reduced, individual sessions were preferred and enrollment by multidisciplinary teams increased.

**Conclusion:** This survey represents the starting platform to compare and discuss different experience of MT in AIEOP centers, to implement MT in pediatric oncology for a more qualified assistance to patients and to improve quality of care.

**Keywords:** Music therapy; Children; Adolescents; Cancer; Complementary therapy

## Abbreviations

MT: Music therapy; AIEOP: Italian Association of Pediatric Hematology and Oncology.

## Introduction

Worldwide every year, it is estimated that there will be more than 400,000 cases of childhood cancer [1]. In Italy, considering the reported incidence of about 170 cases/1 million children, there will be about 7,000 children and 4,000 adolescents suffering from cancer on a 5-year basis.

During the various stages of oncological disease, due to frequent invasive medical treatments and the need for possible prolonged hospitalizations, children and their families experience severe stress and a compromise in their quality of life [2].

Standard medical care is increasingly supplemented by the use of different psychological and psychosocial complementary interventions, with the aim of alleviating the negative effect of cancer and its treatment process [3-5].

Music Therapy (MT), differently by other music-based approaches used in health has received increasing attention in the last few years [3] (Figure 1).

MT in pediatric oncology and palliative care can be used for the management and prevention of various somatic and psychological symptoms of patients [6-10] and often is provided to children together with their families [11].

Although in Italy the application of MT in the field of pediatric oncology is constantly increasing, a survey regarding the presence and application of MT in the Italian Pediatric Hematology-Oncology Association (AIEOP) cancer centers have never been conducted.

Furthermore, due to the outbreak of COVID-19 Pandemic, Italian pediatric oncology departments were obliged to adopt restrictive measures to minimize the risk of in-hospital infections in frail patients and staff members [12], reducing accesses to the wards and psychological and psycho-social support activities as MT.

The purpose of this survey study was to collect and summarize information about MT in pediatric oncology in order to advance our understanding about current clinical practice before pandemic across Italian AIEOP hospitals. Moreover, the outbreak of COVID-19 unavoidably changed the scenario of MT in AIEOP Centers, suggesting some considerations presented in this survey.

## Design and Methods

### Survey

The survey was developed using SurveyMonkey®. Nine questions,

**Table 1:** Survey questions.

TOPIC	QUESTIONS
Music-based intervention	1. Is music used for the well-being of patients in your Centre?
Music therapy focus	2. Who uses a music-based intervention for the well-being of patients?
Frequency	3. How many hours a week is music therapist present?
Setting 1	4. Where music therapy session is provided?
Setting 2	5. Which environments are used for the session?
Individual vs. Group	6. How are the sessions?
Enrollment	7. Who enrolled patients to music therapy?
Evaluation	8. How is the evaluation carried out?

including one related to who answered, were prepared and sent out by e-mail to 32 hematology oncology centers belonging to the Infections and Supportive Therapy Working Group of the Italian Pediatric Hematology-Oncology Association (AIEOP).

The question format used included check boxes for lists and was made up of 2 parts according to the aim of the survey:

1. Questions 1 and 2 explored if the music was being used and by whom (music therapist, musicians, volunteers, nurses, medical doctor or others).

2. Questions 3-9 regarded the modality of delivering MT according to frequency, setting and characteristics (individualized or by groups), modality of patients' enrollment in MT, evaluation instruments.

Questions 3 to 9 were addressed only for the centers where there was a certified music therapist.

All questions within the survey were structured to efficiently collect participant responses (Table 1).

The answers were required to represent the local policies; therefore, faithfully reflecting current practice and not personal opinion.

The survey was not formally tested for reliability or validity.

### Data collection

Data were collected at the beginning of 2020, from February to March 2020 (T1). The survey was then repeated from October 2021 to January 2022 (T2) to find out the effect of COVID-19 restrictions on the practice of MT in the AIEOP centers.

### Data analysis

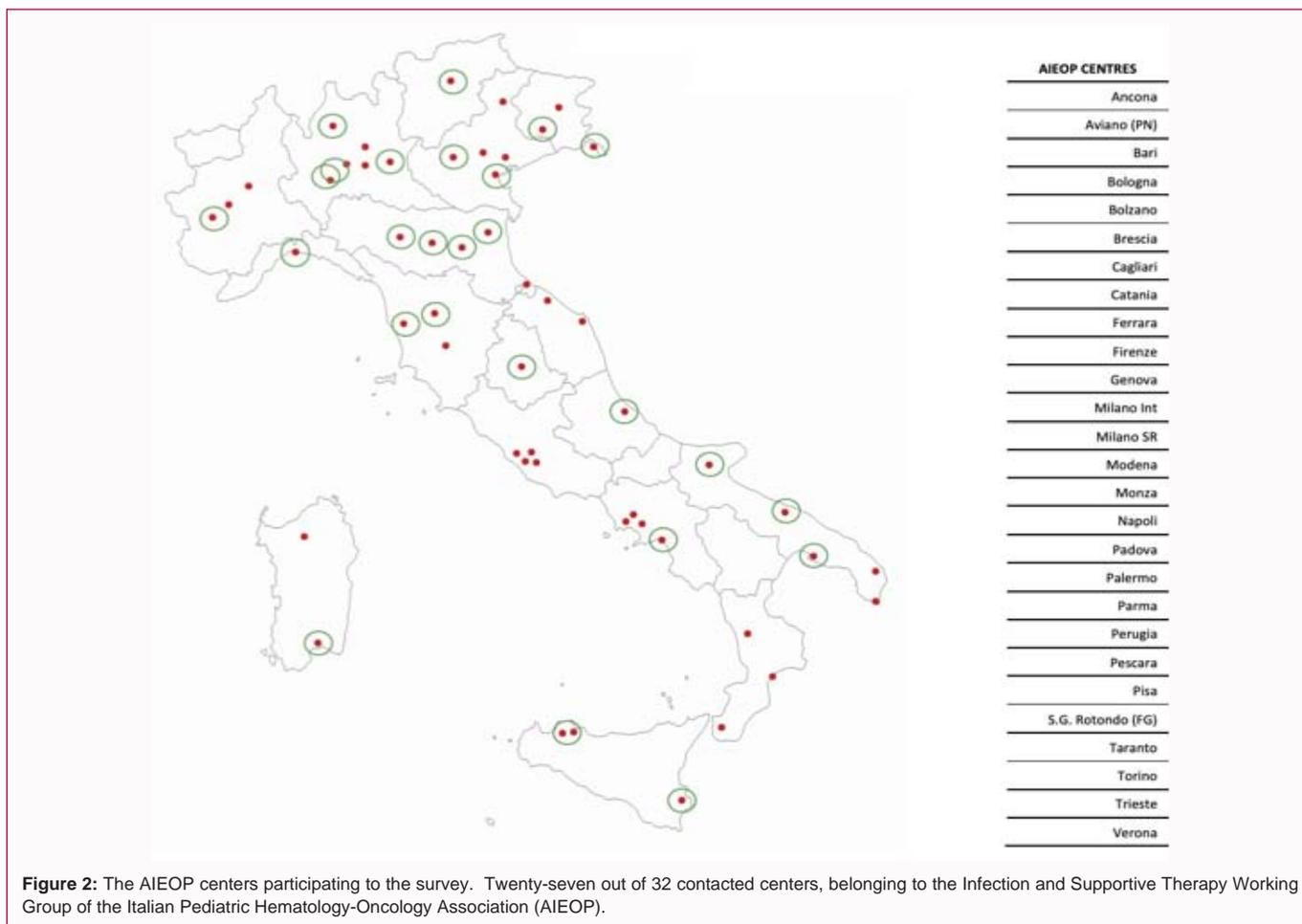
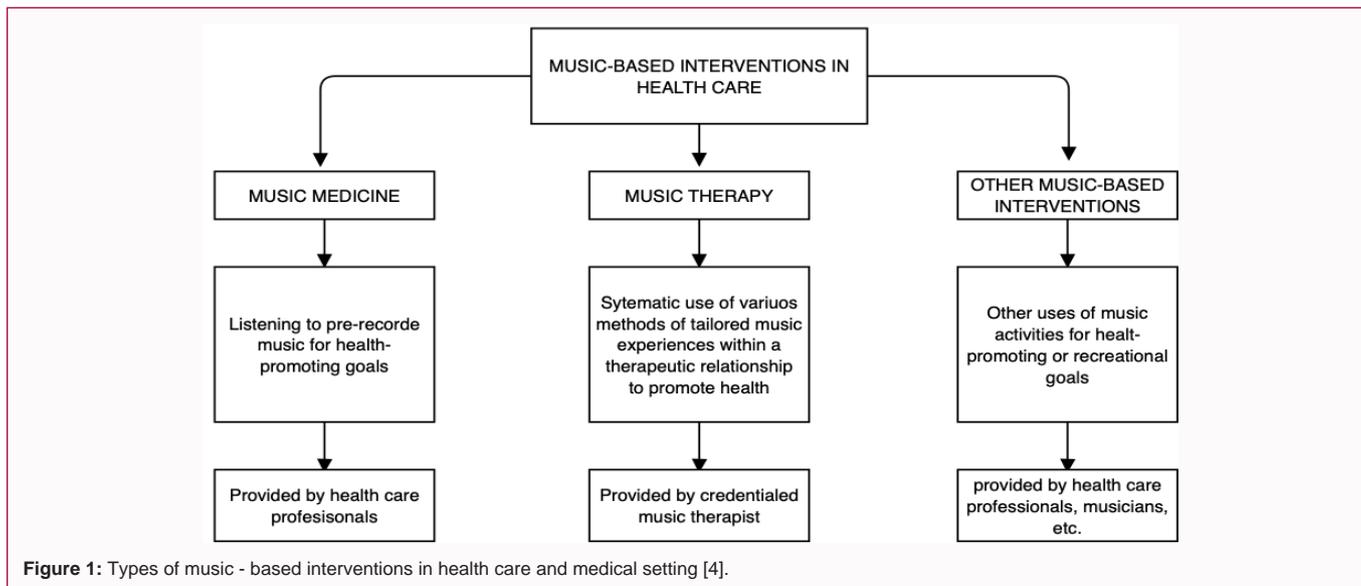
The responses within Survey Monkey were downloaded into a Microsoft Excel (2010) spreadsheet and organized by data type and content. The data were analyzed descriptively with the assistance of a statistical consultant.

## Results

A total of 27/32 centers (84.4%) filled in the survey questionnaire. The participating centers showed a national wide distribution (Figure 2).

In T1 21 out of 27 (77.7%) centers declared to use music with patients. In T2 centers decreased from 21 to 18 (66.67%) (Figure 3a).

In T1 14 out of 21 (66.6%) declared to have a music therapist, while a musician or a volunteer was present in 5 centers each. In T2 the presence of Music therapists decreased of 61.11% (11 out of 21). Professionals and volunteers also decreased, from 23.81% to 11.11%



(Figure 3b).

**Frequency**

In T1, 6 centers provided MT for <3 h/week (42.85%), 3 centers from 3 h to 10 h per week (21.43%), and 5 centers more than 10 h per week (35.71%). In T2, 6 centers provided MT for <3 h/week (54.54%), 1 center for 3 h to 10 h per week (9.09%), and 4 centers (36.36%) for more than 10 h per week (Figure 2c).

**Setting**

MT was delivered in different areas of the ward.

In T1, MT was provided in Day Hospital [10 centers (71.43%)], in the ward [13 centers (92.86%)] or other [5 centers (35.71%)]. In T2 all alternatives were lower than T1, but with the same trend (Figure 2d).

In both periods, the most used environments for MT sessions

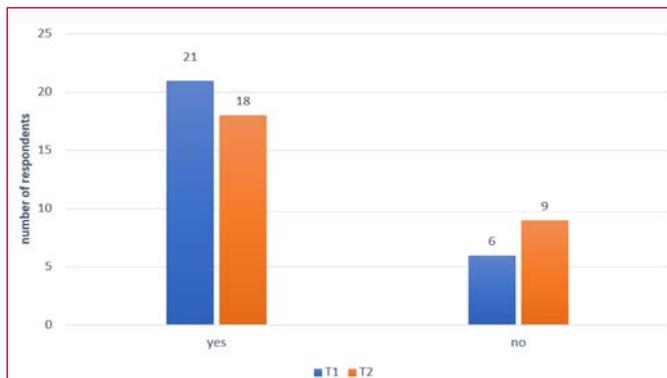


Figure 3a: Music-based intervention in AIEOP centers.

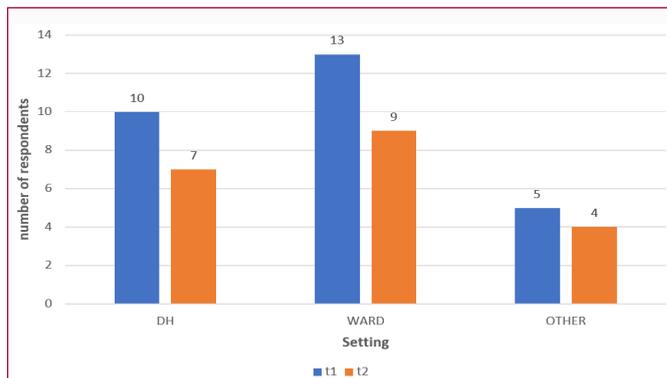


Figure 3d: Setting of music therapy interventions.

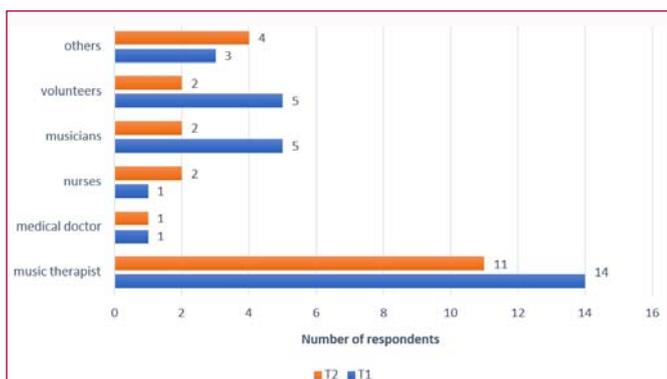


Figure 3b: Who uses a music-based intervention?

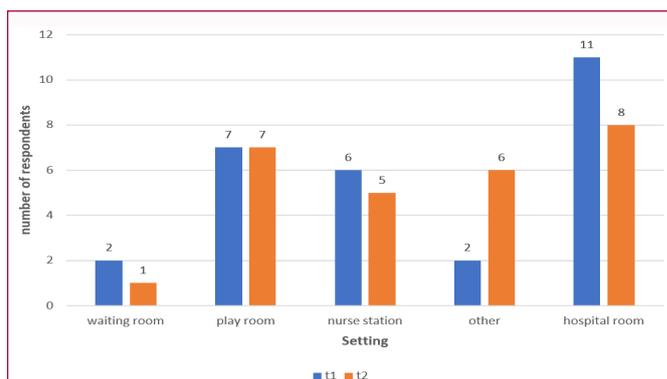


Figure 3e: Use of music therapy interventions in practice settings.

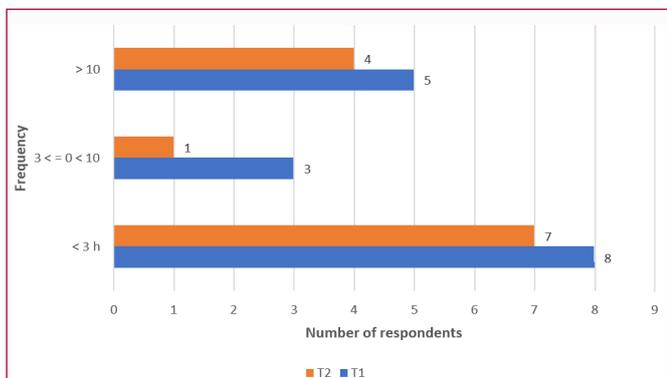


Figure 3c: Reported frequency of music therapy intervention provided by a certified music therapist.

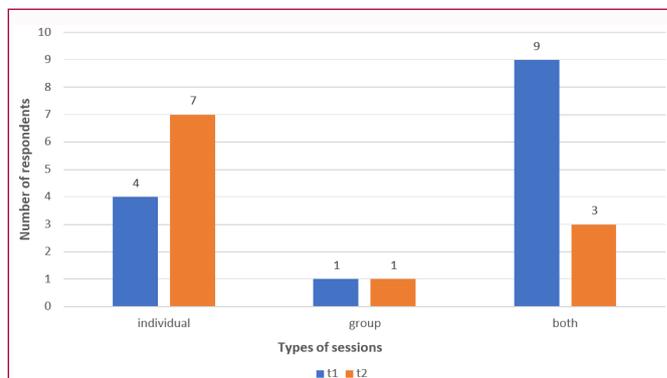


Figure 3f: Type of music therapy sessions.

were hospital rooms, with 11 centers (78.57%) in T1 and 8 centers (72.73%) in T2. The use of waiting rooms decreased between T1 and T2 by 5.2%, while all other options increased (Figure 2e).

**Individual vs. group session**

In T1, 64.29% of MT sessions were carried out with both modalities (individual and group). This option fell by 37.02% in T2 (27.27%). In T2, individual sessions increased by 63.64% compared to T1 (28.57%) (Figure 2f).

**Enrollment**

In T1 and T2, the psychologists enrolled patients to MT (92.86% vs. 90.91%). In T2, the enrollment by both medical staff (64.29% to 54.55%) and nurses (42.86% to 18.18%) decreased. Enrollment by multidisciplinary teams increased in T2 compared to T1 (72.73% vs. 57.14%) (Figure 2g).

**Evaluation**

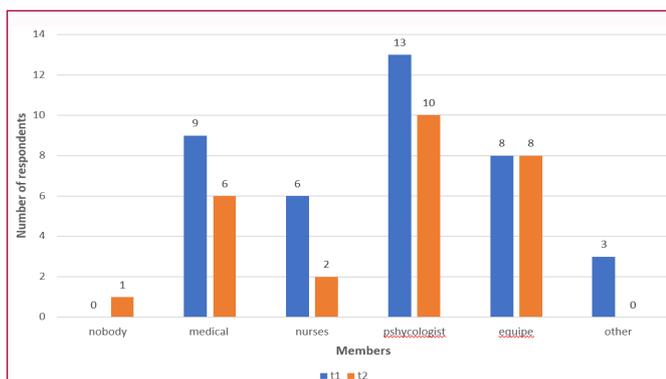
In T1 MT was evaluated with tools self-made by Music therapist [11 centers (78.57%)] and multidisciplinary equip [2 centers (14.29%)], validate scale/test [4 centers (28.57%)], and none [2 centers (14.29%)].

In T2, evaluation of MT decreased in all centers. Despite this, tools self-made by Music therapist increased [9 centers (81.82%)] (Figure 2h).

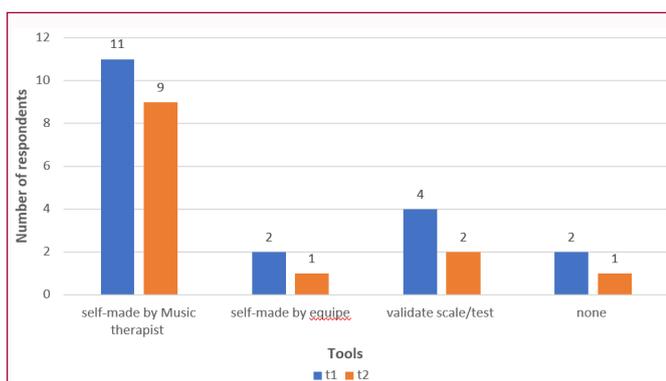
**Discussion**

In this survey we collected and analyzed information about practice of MT in pediatric oncology in many AIEOP centers in Italy.

MT is defined as the systematic use of musical experiences aimed at achieving a therapeutic goal by a trained music therapist and implies the establishment of a relationship between patient, music



**Figure 3g:** Team members who enrolled patients to music therapy.



**Figure 3h:** Tools used to determine effectiveness of music therapy.

and Music Therapist [13,14]. MT requires always a process of initial assessment, treatment and evaluation. According to this definition, all other music-based interventions were excluded from this analysis.

Based on our knowledge, this is the first survey collecting information about MT application in pediatric oncology in Italy.

This survey shows that, before the outbreak of pandemic, MT was provided in about 50% of centers responding to the survey (14 out 27). After pandemic, MT has been suspended in 4 centers and provided in 1. This is likely related to the limitation of accesses to the ward adopted in the hospitals to contain the COVID-19 spreading. Nevertheless, most centers had been able to maintain MT interventions.

MT was delivered with variable frequency: Up to 3 h per week, or more than 10 h and sessions took place in different environments, mainly in the hospital rooms, and were both individual and by groups. As expected, in the post-COVID period, there was an increase of individual sessions.

In the majority of cases patients have been enrolled to MT based on the psychologist's assessment. (13/14 centers), however in some cases the caring medical doctor or the nurse selected patients, in 8 cases patients have been sent to MT based on equip assessment. This is a positive result, and it would be desirable for music therapist to be always included in the multidisciplinary team, in order to share aims from the beginning of the cure and systematically evaluate progress taking care of patients.

Indeed, the survey reveals that evaluation seems to be done primarily using self-made tools by Music Therapist. The evaluation of MT interventions must be carried out with the highest possible qualitative and quantitative standards, but evidence-based research

and real-world evidence should also be used. For this reason, unlike other Music-Based Interventions, music therapist must work in synergy in a multidisciplinary team, which requires a clear, well-organized interdisciplinary and inter-professional approach.

Published literature suggests that music therapy is considered helpful taking care of children and adults in many contexts, particularly in young patients with cancer and their families. MT is one of non-pharmacological intervention that has been increasingly indicated in psycho-oncological support for its benefits in addressing symptoms such as anxiety, low mood, and pain [15].

Studies with children undergoing autologous stem cell transplantation have showed that patients who received MT experienced significantly lower disturbances in mood, decrease of pain perception, and an overall positive effect on depression and anxiety [7].

MT can be considered an excellent support for anesthesia as a complementary/non-pharmacological approach to reduce preoperative anxiety in children undergoing invasive procedure [6,16].

Studies have explored how MT can contribute to psycho-physiological changes [17] and improve quality of life in children receiving palliative care [18].

In a recent worldwide survey among professional members of organizations affiliated with the World Federation of Music Therapy (n=2495), about half of the respondents reported working with children/preteens (50.6%), and teens (45.7%), whereas 38.2% indicated working with infant/children [19]. In particular, in a US survey of music therapists working in pediatric medical settings, most respondents (76%) declared providing services to hematology/oncology patients and their families [20]. Our survey demonstrates that MT is active in daily practice also in some Italian Pediatric Oncology and Hematology Centers. And is likely considered a helpful complementary and alternative therapy.

In several countries, music therapy services are well-established in the field of pediatric oncology, and some treatment guidelines include creative art therapies for this specific client population [5,21].

In a recent review, authors found that music therapy interventions delivered by a trained music therapist led to consistent results across studies for QoL and fatigue and this was not the case for other music-based interventions [22]. We believe that promoting MT in pediatric oncology should be a gold standard of holistic approach to pediatric patients and their family.

Among the 15 Psychosocial Standards (PPS) of the Psychosocial Standards of Care project, which address a wide range of needs for patients and families across the cancer continuum nine standards have been identified that they are implemented through music therapy intervention (PSS 1, 4, 6, 7, 8, 9, 10, 13, 15) [23,24].

The presence of certified music therapists can help to improve the standards through research and evidence-based interventions, thanks to an innovative and tailored care, and ongoing assessment to provide the best care when and where it is mostly needed [25].

The best practice of MT in pediatric oncology requires communication and collaboration among multidisciplinary care team using a model of family-centered care that actively involves parents/caregivers in assessment, treatment planning, and care delivery.

However, it is important to note that to exploit the potential of music therapy in an optimal way, specialized academic and clinical training and careful selection of intervention techniques to fit the needs of the client are essential [25].

## Conclusion

MT should be implemented involving more AIEOP centers, and this survey could be the starting platform to compare and discuss different experience and to widen the knowledge and networking for a more qualified assistance to pediatric oncology patients and to improve quality of care.

Particular attention should be paid to rearrangements of accesses due to covid pandemic: Although the majority of centers did not abrogate MT interventions, judgment about limitation should be carefully taken since MT helps children and even more adolescents in their fight against cancer.

## Limitations

The application of MT are different in AIEOP Centers, however this could be just guessed based on this Survey, since our objective was to explore the status of MT in Italy, a more detailed questionnaire should explore different applications of MT in pediatric oncology in Italy.

## Acknowledgement

The authors would to thank Tim Trevor-Briscoe (music therapist) and Chiara Acler (music therapist) for their contribution in reviewing draft of survey questions.

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