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# The Cultural Wellbeing Lab

SUMMARY OF RESULTS

MARCH 2023

A project of



Fondazione  
Compagnia  
di San Paolo

# The project

The Cultural Wellbeing Lab - CWLAB is a three-year project for capacity building, planning, experimentation, evaluation, consolidation and dissemination of various models and intervention protocols in the field of cultural welfare by Fondazione Compagnia di San Paolo. The aim is to encourage the development of a laboratory in the Italian north-west, with a systemic approach, to promote the creation of a complete cultural welfare model.

The project was launched in 2020 and during the first year it created an interdisciplinary Scientific Committee and four planning hubs involving several first and second level entities in different fields: health, culture, public administration, social.

Supported by the Scientific Committee, the hubs worked to set up an experimental activity (one per working group, a total of four) conducive to generating an intervention model or a reproducible and scalable protocol to be integrated into the daily practices of the organisations

The four planned activities were launched between 2021 and the autumn of 2022, and their evaluation was supported by the ASVAPP research group.

The projects were focused on **4 main strands**:

- 1. Culture and primary prevention**  
"Dedalo Vola" Project
- 2. Culture, care relationship and medical humanities**  
"Verba Curant" Project
- 3. Culture for the humanisation of care facilities**  
"Cultura di Base" Project
- 4. Well-being and care in cultural institutions**  
"DanzArTe" Project

The **second phase** of CWLAB (from January 2021 to December 2022) involved the concurrent implementation of the four activities, a programme of 4 webinars and four live local workshops intended to deepen understanding of the four strands, working with the planning hub professionals, meeting institutions, bodies, associations and operators working locally in the fields of health and culture, creating networking opportunities.

The third and **final phase** (2023) involves the presentation of the results of the four projects to the public.

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This report contains a description of the 4 projects and their results.



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MAIN STRAND #1  
CULTURE AND PRIMARY PREVENTION

PROJECT

# Dedalo Vola



## Descrizione del progetto

The “Dedalo Vola” aims to support **healthy lifestyles among the adult population of Vercelli** by promoting a full package of cultural activities of various kinds.

“Dedalo Vola” is the evolution of “Dedalo - Volare sugli anni”, a project carried out in the municipality of Vercelli in 2018 that offered activities connected to **4 different strands**:

- the **eating well** strand, which promoted activities intended to promote better eating habits;
- the **wonder and amazement** strand, which promoted activities intended to exercise the mind and cognitive and relational functions;
- the **moving together** strand, which offered actions intended to encourage physical activity;
- the **local discovery** strand, which aimed to promote well-being associated with the local area.

With “Dedalo Vola”, the intention was to continue experimenting with the activities carried out as part of the Wonder and Amazement strand because, unlike the other strands, the effectiveness of which is believed to be confirmed by pre-existing scientific evidence, the effects of the initiatives it promotes are considered more uncertain and worthy of further study.

The project was carried out in the city of Vercelli by a partnership of public and private entities in the area: Vercelli Local Health Authority (lead organisation), Municipality of Vercelli, University of Eastern Piedmont, MUVV-Musei di Vercelli and Varallo in rete network, DoRS Piemonte, ANCI Piemonte and Abbonamento Musei, which offered a full package of interventions split into **5 types of activities**:

- **museum** experiences;
- **reading** experiences;
- active **theatre** experiences;
- active **music** experiences;
- transformation of **healthcare spaces** and health-themed workshops.

## The purpose of the evaluation

The idea behind Dedalo Vola is that involvement in cultural activities, in the broadest sense, can have an effect on a variety of individual dimensions, including habits, behaviour, well-being. The evaluation of its effects is intended to verify the existence of these benefits, focusing in particular on **two dimensions** (outcome):

- **perceived well-being**;
- **cultural fruition**.

Expressed in counterfactual terms, the question which the evaluation sought to answer is “What is the well-being of people taking part in Dedalo activities?”, “What would their well-being have been if they had not taken part?”, where the difference between the “with” and “without” conditions captures the effect of the involvement.

Before tackling the effects evaluation design and its results, we should clarify what is meant by “participation” whose effects are being evaluated. Dedalo involves the implementation of various initiatives, all of a cultural nature but potentially different in their characteristics, content and duration. However, the data available on the group of participants included in the analyses do not allow us to distinguish between the various initiatives in which they participated. The results presented below should therefore be understood to refer to the Dedalo initiatives as a whole.

## Evaluation design

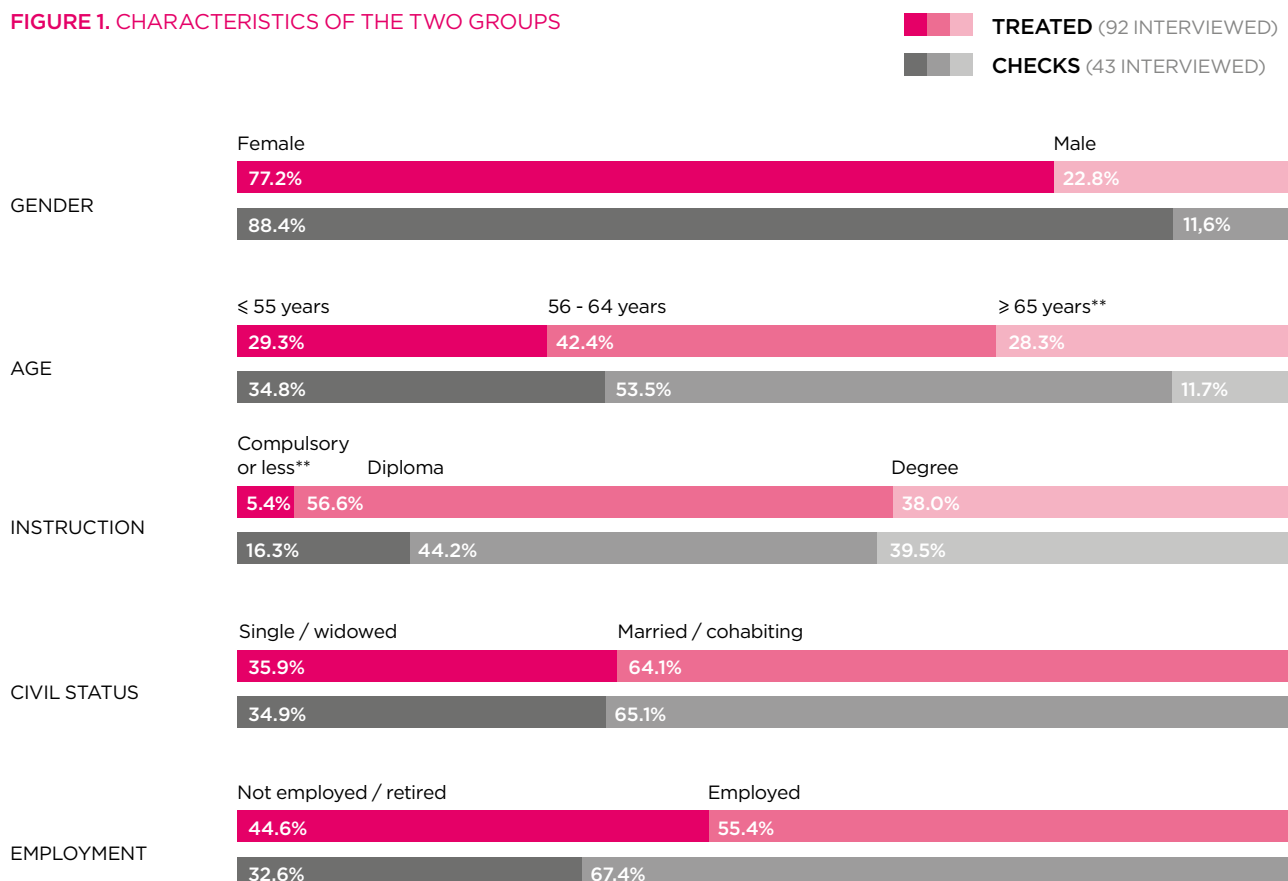
The evaluation used a “difference in differences” method. Firstly, the effects are estimated by comparing the outcomes of a group of participants in Dedalo with those of a group of non-participants (control group). Secondly, the comparison between groups is not based on the simple ex-post conditions of the two groups, but on the evolution of these conditions over time.

At the beginning of the project (**before participating** in the initiatives), the **participants** were asked to fill out a **questionnaire**. The questionnaire gathered some useful personal information of a demographic, economic and social nature to provide a description. The same questionnaire contains a set of questions relating to **outcomes**, particularly regarding **interest in a series of cultural activities** (measured using the Likert scale) and **psychological well-being** (measured with the validated WEMWBS, Warwick-Edinburg Mental Well-Being Scale and PGWBI-S, Psychological General Well-Being Index-Short scales).

At the same time, the survey by questionnaire was conducted on a **control group** of subjects who did not take part in the project. The controls were randomly selected from the Local Health Authority archives among the residents of the nearby city of Novara, with a sampling procedure that guaranteed a similar demographic structure to that of the participants. The controls therefore live in an area comparable to Vercelli (urban area, with similar characteristics), have a similar distribution in terms of basic demographic characteristics, but were unable to participate in Dedalo (not present in Novara).

Although the design envisaged collecting information on two groups of at least 400 people each, a series of organisational difficulties led to the availability of a very small group of observations, 92 treated and 43 controls respectively, with inevitable repercussions on the accuracy and interpretability of results.

FIGURE 1. CHARACTERISTICS OF THE TWO GROUPS

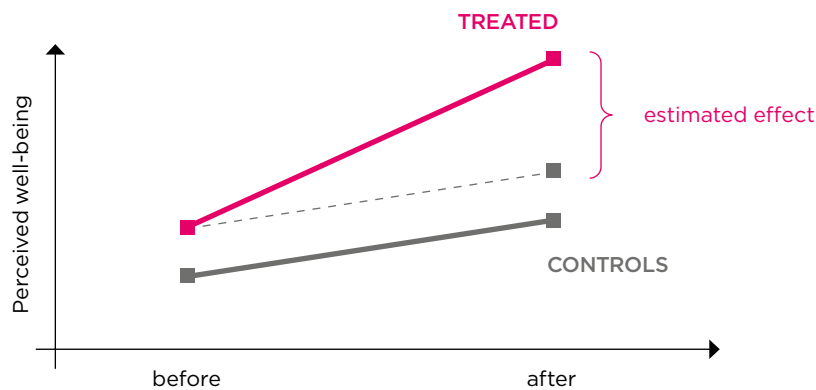


Statistically significant differences for \*  $\alpha = 10\%$  \*\*  $\alpha = 5\%$ .

78% of the participants were women. The age range is quite wide, and over 70% are under 65. They are socially active people who frequently see both friends and family, and 80% declare themselves to be financially stable. The general aim of the project was to involve a “new” section of the population in the activities, consisting of people not already accustomed to enjoying culture. This aim was also shared in terms of evaluation, given that a cultural project can probably have more visible effects on people who are not already used to participating in such initiatives. In this respect, the characteristics of the participants meet the expectations: 73% have never participated in Dedalo activities in the past. Table 1 summarises some of the characteristics of the groups.

The two groups were interviewed again a few months later. In the intervening period, one group was able to take part in the Dedalo activities. Determining the effects using the “difference in differences” strategy essentially consists of observing the initial differences between the outcomes of the two groups and the final ones. Based on the so-called **trend parallelism** assumption, without Dedalo the differences observed in the first survey would have remained identical in the second. If there are deviations in the second survey, these are attributed to Dedalo (Figure 2). This approach produces correct estimates if the parallelism assumption holds. If not, the estimates of the effects suffer from a bias, given that people with different characteristics can show different trends. In order to take this into account, the estimates were obtained by checking the initial characteristics of the two groups via linear regression, i.e. only attributing to Dedalo the part of the change that would have been observed under the **same initial conditions**.

FIGURE 2. EXAMPLE OF THE DIFFERENCE IN DIFFERENCES METHOD



## Results

The results are summarised in Table 2. As regards interest in **cultural fruition**, the results focus, case by case, on the percentage of those who have expressed a “very high” interest in the various activities surveyed. In this respect, no changes attributable to participation in Dedalo are shown. The **assessments of the effects** are sometimes positive, sometimes negative, but none are **statistically significant**.

The results are more mixed with regard to **perceived well-being**. This was measured with the aforementioned WEMWBS and PGWBI-S scales, also in this case presented at a category level, using the cut-off thresholds (high, medium, low well-being) found in the literature. In the case of the WEMWBS scale, a change for the better (move towards higher well-being categories) is shown, but again the change is not significant. The only **statistically significant appraisal** relates to well-being measured with the **PGWBI-S scale**, where there is a consistent reduction in cases of medium-low well-being (state of distress) in favour of medium-high (state of no distress).

Overall, the evaluation returns an unclear picture as regards the change in cultural activities, while suggesting an improvement in perceived well-being attributable to participation. The statistical significance of the results remains limited, particularly due to the low number of observations available for analysis.

TABLE 1. ESTIMATES OF EFFECTS

Variable		Range (min - max)	Average value of participants	Estimated effect
<b>PSYCHOLOGICAL WELL-BEING</b>				
<b>Positive psychological well-being (WEMWBS)</b>	% low	0 - 100	13.6	-5.9
	% average	0 - 100	76.5	+2.8
	% high	0 - 100	9.8	+3.1
<b>General psychological well-being (PGWBIS)</b>	% very low	0 - 100	35.6	+1.3
	% low	0 - 100	13.5	-19.1*
	% average	0 - 100	44	+13.9
	% high	0 - 100	6.8	+3.9
<b>CULTURAL FRUITION</b>				
Interest in <b>books and literature</b>	% high	0 - 100	77.1	-7.7
Interest in <b>museum experiences</b>	% high	0 - 100	64.1	-12.1
Interest in <b>singing and concerts</b>	% high	0 - 100	54.4	-2.4
Interest in <b>theatre shows</b>	% high	0 - 100	51.1	+4.3
Interest in <b>courses and workshops</b>	% high	0 - 100	33.3	-10.9

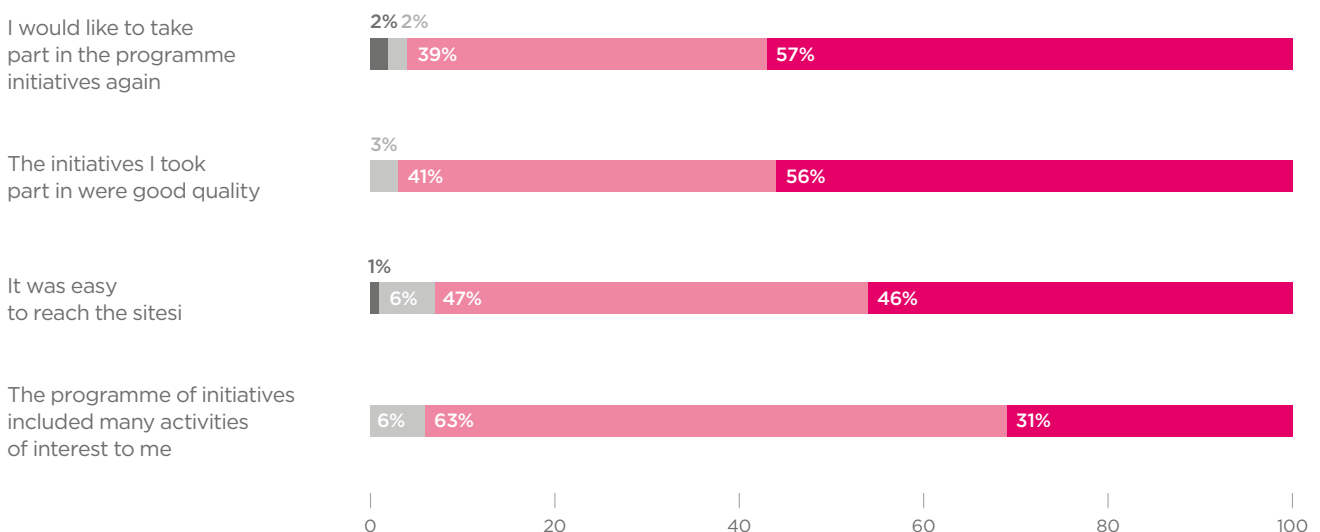
Statically significant differences for \*  $\alpha = 10\%$  \*\*  $\alpha = 5\%$

## Satisfaction of participants

In the second survey, the participants answered some questions on their satisfaction with the initiatives in which they took part. The responses are decidedly positive (Figure 3), both in terms of quality and variety and logistics.

FIGURE 3. SATISFACTION OF PARTICIPANTS

■ not at all ■ not much ■ moderately ■ a lot







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MAIN STRAND #2

CULTURE, CARE RELATIONSHIP AND MEDICAL HUMANITIES

PROJECT

# Verba Curant

verba  
CURANT

## Project description

The “Verba Curant” project was carried out by a partnership between the Medical Humanities Study Centre of Alessandria Hospital and the Holden School of Turin, to verify the effect of a medical humanities intervention on the empathic capacity of care operators, through culture. Its goal was therefore to generate **cultural value**, hoping that it could unite the different professional fields involved and become a form of heritage for the community.

The project stems from an analysis of the scientific debate over recent years, which has increasingly highlighted a cultural dimension in studies on well-being. As individual well-being is substantially influenced by specific forms of cultural access, policies that aim to promote cultural access can be considered to be health policies. In fact, the relevant literature points out that a citizen with a good degree of health literacy is potentially able to better manage the stress of uncertainty related to protocols, prevention, diagnostics and therapies and, therefore, create a **virtuous circle of good practices useful for society** as a whole. This is why one of the aims of the project was precisely to overcome the problems of languages, prejudices and legitimacy among stakeholders who do not yet recognize the value and importance of initiatives that promote the relationship between culture, well-being and health.

Aiming to enhance culture as an integral part of the treatment process, “Verba Curant” is fully part of the transformation of Alessandria Hospital into a health literate hospital. In line with the WHO report on the role of culture in caring for people, the project focuses on storytelling as a cultural activity capable of establishing a profound link with the understanding and experiences of those to whom it is addressed. Storytelling creates safety zones and helps people come to terms with situations that have upset a balance: the training approach is based on gaining this awareness. Cultural participation cannot be seen as a treatment tool without taking into account the individual’s history, abilities and interests.

In practical terms, the project was implemented by **activating a specific training course** aimed at healthcare professionals and led by several teachers from the Holden School. The aim of the training was to make professionals more aware of the important role played by culture in healthcare contexts, implementing increasingly effective and empathic communication with patients.

## The purpose of the evaluation

The idea behind the project is that participation in the training course can alter the perceptions of the operators involved, firstly by making them more empathetic. The ultimate aim is to ensure that this greater empathy will change the approach to patients, and improve their conditions and perceptions. In this study we stop at the first step: first verifying whether the course modifies the conditions of those who took part. The outcomes of interest for the evaluation are therefore:

- the **well-being perceived by operators**;
- their **level of empathy**.

Expressed in counterfactual terms, the question which the evaluation sought to answer is “What is the empathy of the people taking part in the courses?”, “What would it have been if they had not taken part?”, where the difference between “with” and “without” conditions captures the effect of the course.

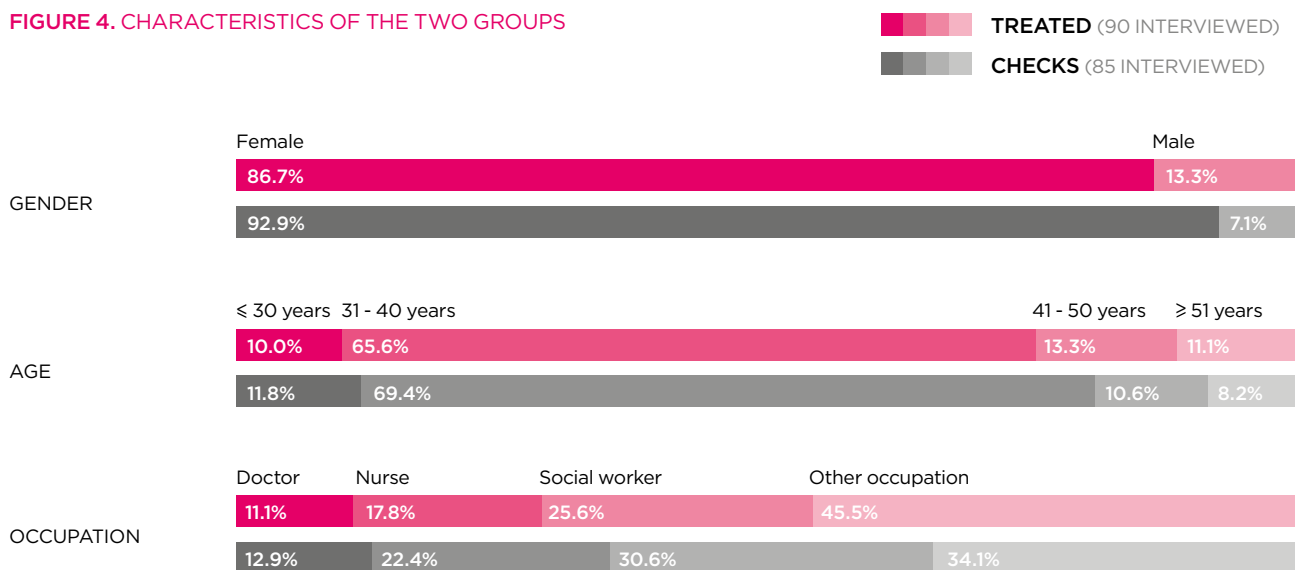
## Evaluation design

The evaluation was based on a randomized experiment: the operators who applied to participate in the project were divided into two groups by drawing lots: one group (treated) participated in the course, the other served as a control group. The random selection of the participants served to rule out any participation based on individual characteristics, thus favouring the initial similarity and comparability of the two groups.

The control group was not completely excluded from the intervention: while the **treated** participants participated in the **entire 12-hour course**, the controls participated in the **first 4 hours** of distance learning. This meant that the evaluation did not assess the overall effect of the course, but the effect of the course versus the alternative of attending only the 4 hours of distance learning. In other words, the effect of the additional 8 hours.

The two groups, consisting of 90 and 85 operators respectively, are described in Figure 4. 90% of the groups were women aged between 30 and 40 years. There was a diversity of occupations. Doctors accounted for about 10%. The differences between the groups were not significant

FIGURE 4. CHARACTERISTICS OF THE TWO GROUPS



Statistically significant differences for \*  $\alpha = 10\%$  \*\*  $\alpha = 5\%$

The two groups were asked to complete a questionnaire at the end of the process, in which the outcomes of interest were revealed: well-being was measured with the validated PGWBI-S (Psychological General Well-Being Index-Short) scale, empathy with the Jefferson Empathy Scale (JES).

Evaluating the effects involved comparing the outcomes of the two groups to be compared. The survey was also conducted prior to the start of the courses, in order to determine the initial level and verify the similarity produced by the random selection. The estimates can thus be conducted more accurately with a difference in differences appraisal, identifying the final differences net of any pre-existing ones.

## Results

A first analysis conducted by the researchers focused on the pre-post variations in the individual groups. In the treated group, the pre-post comparison shows how empathy and well-being changed from before the course to after it ended. In the controls, the comparison is between the initial condition and the one following the 4 hours of distance learning. This first analysis shows a **gradual improvement in both groups**. The researchers state that participation in the complete course produced a significant increase in **both dimensions**, in the order of 5% on the **empathy** front and 12% on the **well-being** front, both statistically significant (Table 2). This evidence can only be viewed as an appraisal if one is willing to believe that in the absence of the courses there would have been no changes over time. Caution with regarding this threat, known as “spontaneous dynamics”, generally suggests limiting oneself to a descriptive reading rather than one of cause-and-effect. Secondly, the **effects of the additional 8 hours** compared to the distance learning module alone were appraised, comparing the evolution in the outcomes for the two groups. The **results are more contained**: there are no effects on empathy, while there is still a marginally significant increase in well-being.

TABLE 2. ESTIMATES OF EFFECTS

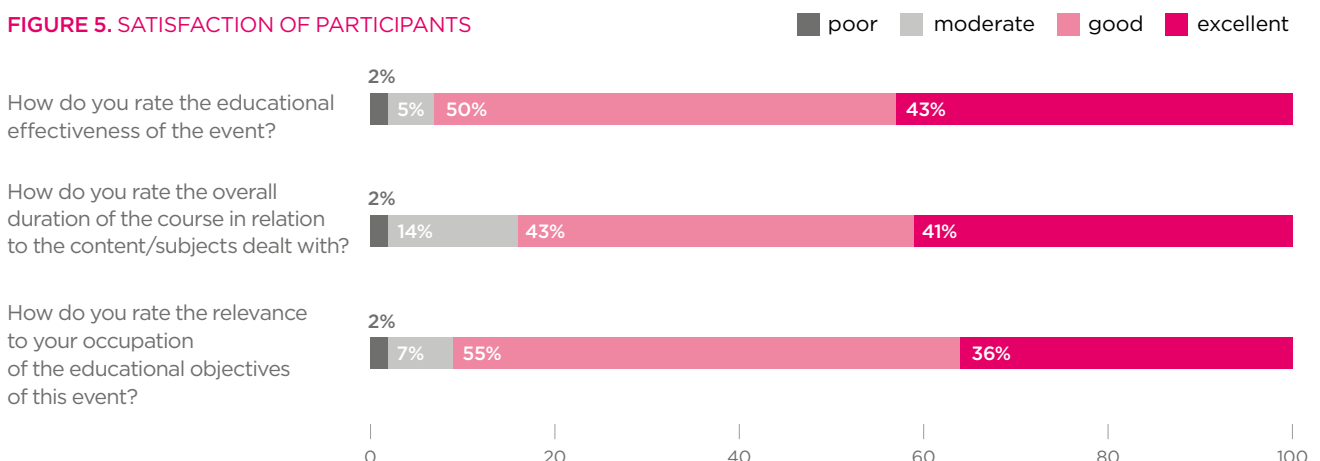
Variable		Range (min - max)	Average value of participants	Estimated effect
<b>PRE-POST COMPARISON</b>				
<b>TREATED</b> (complete course)	<b>Empathy</b> (JES Scale)	20 - 140	112.5	+3.0**
	<b>Well-being</b> (PGWBI-S Scale)	0 - 110	73.2	+10.9**
<b>CHECKS</b> (FAD)	<b>Empathy</b> (JES Scale)	20 - 140	113.0	+4.0**
	<b>Well-being</b> (PGWBI-S Scale)	0 - 110	76.9	+7.3**
<b>Estimated effects of the ADDITIONAL 8 HOURS</b>				
<b>TREATED / CHECKS</b>	<b>Empathy</b> (JES Scale)	20 - 140	112.5	-1.0
	<b>Well-being</b> (PGWBI-S Scale)	0 - 110	73.2	+3.6*

Statistically significant differences for \*  $\alpha = 10\%$  \*\*  $\alpha = 5\%$ .

## Satisfaction of participants

The questions put to participants to assess their satisfaction mainly produced **positive opinions** (Figure 5): in 85% of the cases the duration of the course is considered adequate. Positive opinions of over 90% were expressed in relation to the training effectiveness of the course and the relevance of the course to professional needs.

FIGURE 5. SATISFACTION OF PARTICIPANTS





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MAIN STRAND #3

CULTURE FOR THE HUMANISATION OF CARE FACILITIES

PROJECT

# Cultura di Base

CB Cultura di Base

## Project description

The Cultura di Base project involved GP practices in Turin through the relocation of outpatient services from ordinary practices to “intense architecture” practices (IAPs) characterised by high quality in the design of spaces and communication of emotions. The intention of the project is to turn these places into the doctor’s waiting room. While waiting, the patient is immersed in a kinesthetic experience with contributions based on the cultural content of the places involved in the experiment, which amplifies the effect of the architectural space, **reduces the stress** of waiting, **increasing well-being** and psycho-physical comfort. The action implemented by the project was based on the idea that a well-designed space can be a vehicle for positive sensations connected with the broader concept of health. Based on this assumption, Cultura di Base intends to move the experience of waiting and the outpatient visit from the usual places, making them part of an educational and cultural journey in the architectural space, a contributor to mental and physical well-being. The architecture and cultural content of the selected spaces are offered to patients and doctors involved in the project as a multisensory experience that **generates deep emotions and learning** and therefore contribute to the treatment path itself.

In summary, creating GP practices and their waiting rooms in places of culture is intended to influence the experience of the medical visit, triggering potential benefits for both the doctor and the patient and the relationship between them.

The project was carried out by a partnership consisting of Fondazione per l’Architettura (lead organisation), Arteco, Circolo del Design, Order of Doctor-Surgeons and Dentists of the province of Turin, Turin Health Authority. Operating in Turin between May and October 2022, Cultura di Base involved seven GPs working throughout that period in five IASs set up at:

- the **Museo Egizio** [Egyptian Museum];
- the **Museo dell’Automobile** [Automotive Museum];
- the **Parco d’Arte Vivente** [Living Art Park];
- the **Primo Levi Library**;
- the **Polo del ‘900** [cultural centre].

## The purpose of the evaluation

The Cultura di Base experiment stems from the assumption that the characteristics of the doctor’s practice, and in particular of the waiting room, can make the difference in the patient’s perceptions. Waiting for the visit in a place that transmits certain sensations and certain stimuli through its cultural content can **improve the experience and perceptions**.

The evaluation of the effects aims to verify this hypothesis, estimating the effects on:

- patient status, in terms of their **well-being** and **anxiety**;
- perception (by the patient) of the **alliance with the doctor**, i.e. of the degree of trust and collaboration that governs the relationship between the two.

The evaluation question therefore expresses a contrast between two situations: a visit to an “intense architecture practice” (hereinafter IAP) and a visit to an ordinary practice (OP). Expressed in contrafactual terms, the question is “What is the well-being of patients after a visit to an IAP?”, “What would have been their well-being if they had had the visit at an OP?”, where the difference between the two conditions: visit at an IAP or an OP, estimates the effect sought.

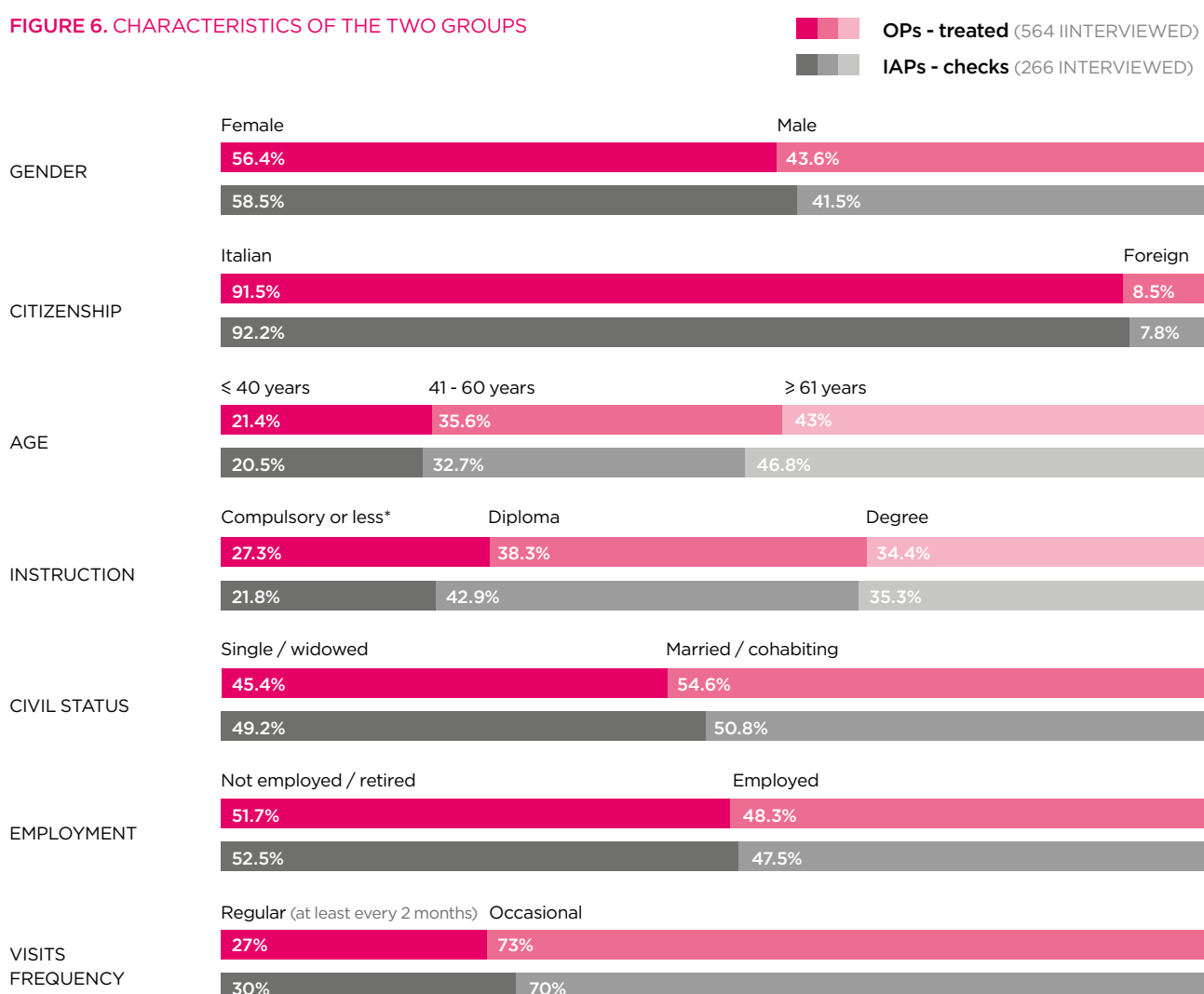
## Evaluation design

The evaluation design was based on a non-experimental control group. Throughout the six months of the project, the doctors involved worked, on alternate days of the week or alternate times of the day, both at the IAP and OP. This meant that some patients (treated) experienced waiting at the IAP, while the others (controls) waited at the OP. All the patients were asked to complete a questionnaire after the visit. This served to collect a set of personal information (demographic, social, cultural, recourse to GP) used to describe the patients, as well as to determine outcomes immediately after the visit, in particular:

- the **state of well-being perceived** at the end of the visit (measured on a continuous scale of 0-100);
- **anxiety** (continuous scale of 0-100) and other feelings experienced while waiting (Likert scale);
- the **degree of alliance** with one's doctor (measured with the validated WAI scale).

Overall, information was collected on 564 patients in IAPs and 266 in OPs. For patients who made several visits during the relevant period, the questionnaire was completed only once. Table 5 describes the two groups. The gender distribution is uniform, over-60s account for just over 40%. There are similar numbers of employed and unemployed/retired people, as well as singles and cohabitants. Three out of four had an occasional visit.

FIGURE 6. CHARACTERISTICS OF THE TWO GROUPS



Statistically significant differences for \*  $\alpha = 10\%$  \*\*  $\alpha = 5\%$ .

In order to appraise the effects of IAPs, the mean outcomes of treated and controls were compared, determining the effect of IAPs based on the difference. This approach produces correct appraisals if one assumes that a patient's allocation to an OP or an IAP is random, and therefore does not depend on the characteristics of the individual. Otherwise, the selection process would produce starting differences between the two groups and a consequent bias in the appraisals of the effects.

In the case in question, the selection process is not random because it depends on the patient's choice. However, there are some elements that suggest that individual characteristics do not play a major role in the selection process:

- visits are **booked by telephone**. When booking, the patient is not informed of the existence of a practice in a place of culture, and it can be assumed that the choice of the place is dictated largely by the patient's availability and that of the doctor, on certain days or time slots;
- if the choice of studio practice is dictated by **the days and time slots** in which it is open, it can lead different people to make different choices. For example, workers may prefer evening slots more than retired people. To avoid this leading to significant selection distortions, each doctor was asked to set a timetable for the IAP and OP opening hours that guaranteed the availability of both on different days and in different slots, both in the morning and in the afternoon/evening.

The previous considerations suggest that the potential selection bias is limited. Beyond these considerations, in order to control the remaining initial differences, the comparison between groups was conducted with techniques based on the **selection of observables**: the idea is that if individual characteristics have a role in the selection process, and these characteristics are observable, the use of ad hoc techniques allows one to **estimate the effect net of these characteristics**. In our case, the questionnaire survey made it possible to collect a large set of information on each patient to describe any selection mechanisms. This information was used as covariants, estimating the effects by linear regression and statistical matching techniques. The results achieved with the various techniques are substantially the same. In order to verify the robustness of the results, **analyses** were conducted **on specific subgroups less** exposed to selection bias, in particular excluding those who declared that they had chosen an IAP out of curiosity. In this case as well, the results are in line with the previous ones.

## Results

Before showing the results, it is worth pointing out that the evaluation design only provides a snapshot of the effects of a single visit to the IAP. In order to capture the effects of multiple visits over a longer period, one would need a completely different design, which cannot be implemented with the current structure of the project. It is therefore likely that any effects are attributable to a momentary interest in the surroundings. At the moment no conclusions can be drawn on the effects of greater exposure.

The results, summarised in Table 3, suggest that **waiting for a visit in an intense architecture practice** first of all creates a **better perception of the wait**. Patients were questioned about their perception of time "never passing", and a visit to an IAP produced a marked improvement in this perception: 65% replied that time passed very quickly, 13% more than it would have been at an OP. An increase in the ability to be distracted while waiting is also noted, but the variation is not statistically significant.

Patients' **anxiety levels** while waiting are, on **average low**, and do not seem to be affected by the IAP. Finally, the effects on **well-being** immediately **after the visit** are visible: the average level on a scale from 0 to 100 is 67, with a statistically significant increase in the order of 3 percentage points.



Finally, as regards the degree of perceived alliance with the doctor, no IAP effects are noted. This result can be interpreted in light of the characteristics of the project and its evaluation. The doctor-patient alliance differs from other outcomes in terms of the factors that combine to influence it. The previous outcomes are based on instant perceptions so, as mentioned at the beginning of the paragraph, they are more easily modifiable based on a single visit. On the other hand, the doctor-patient alliance, even as an instant perception, presumably depends on a more prolonged experience, on opinions matured over time, so it is less affected by a single visit.

A series of subgroup analyses showed that the benefits of an IAP are greater in older patients.

TABLE 3. ESTIMATES OF EFFECTS

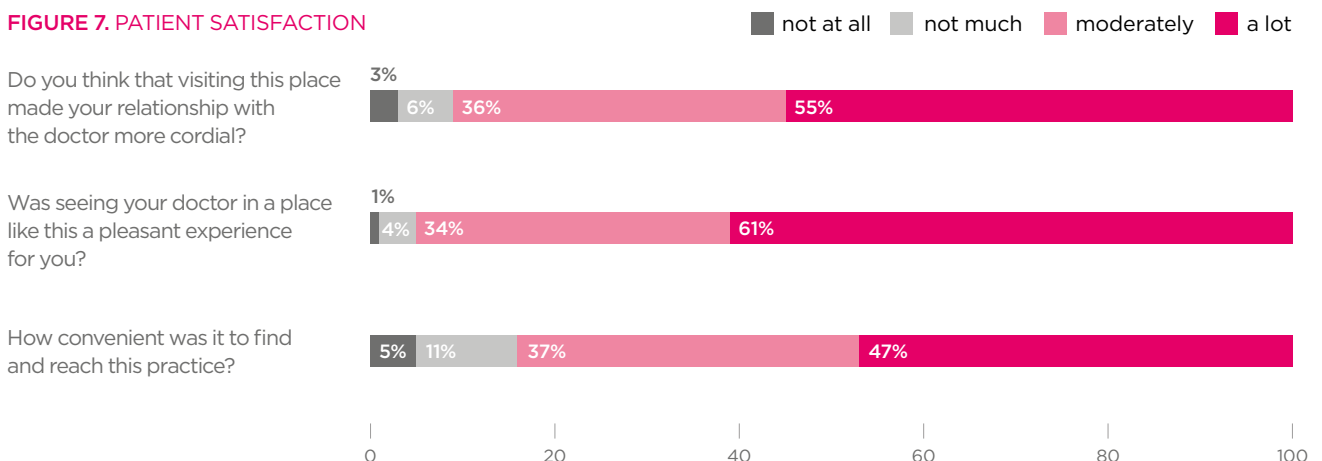
Variable	Range (min - max)	Average value of participants	Estimated effect
% of people who were very <b>distracted while</b> waiting	0 - 100	23.0	+4.5
% of people for whom <b>the waiting time “flew”</b>	0 - 100	65.4	+13.5**
State of <b>anxiety</b> during wait	0 - 100	10.5	-0.1
State of <b>well-being</b> after visit	0 - 100	67.4	+3.2**
<b>Doctor-patient</b> alliance (WAI)	0-100	83.2	+0.8

Statistically significant differences for \*  $\alpha = 10\%$  \*\*  $\alpha = 5\%$ .

## Satisfaction of participants

Patients at IAPs finally expressed their some opinions about the initiative. The questions asked related in particular to the logistics, in terms of how convenient it was to find and reach the practice, and the appreciation for the novelty of the IAP, in terms of the pleasantness of the visit and perception of a more cordial relationship with the doctor. The **opinions are largely positive**: fewer than 10% do not consider the experience pleasant, 16% reported some logistical difficulties.

FIGURE 7. PATIENT SATISFACTION





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MAIN STRAND #4

WELL-BEING AND CARE IN CULTURAL INSTITUTIONS

PROJECT

# DanzArTe

**danz ar te**  
DIAGNOSTIC WELLBEING TECHNOLOGY

## Project description

The DanzArTe-Emotional Wellbeing Technology project has developed and tested a scientifically validated protocol and a technological platform at affordable costs for the **treatment of elderly people at risk of frailty**, based on aesthetic resonance with a work of art as a tool for physical and cognitive stimulation: the interaction with visual contents (works of visual arts) and sound (interactive sonification) is essential. “Dancing Art” therefore, as a physical activity and cognitive memory training exercise to **rediscover yourself through dance**.

The project is run by DIBRIS University of Genoa, CUROGE E. O. Ospedali Galliera di Genova, Lavanderia a Vapore, RSA Cardinal Minoretti, Museo Diocesano di Genova, AMEI - Associazione Musei Ecclesiastici Italiana, Fondazione Piemonte dal Vivo, SIGOT Società Italiana Geriatria Ospedale e Territorio, Goethe-Institut Genua e Torino.

Through DanzArTe-Emotional Wellbeing Technology, using purpose-made technological equipment, the participants, elderly people at risk of frailty, are placed in front of a projection and invited by the video to **reproduce**, either alone or in a group, some **movements inspired by pictorial works**. Guided by the image, they have the opportunity to discover independently, either individually or in groups, the gestural contents (and the consequent emotional values) of ancient works of sacred art through simple **expressive movements of the body**. The automatic analysis in real time of the quality of movement of the participants allows the interactive generation of sounds and manipulation of the projected images, revealing the movements made according to a precise stimulation plan planned by the project’s clinical staff.

## The purpose of the evaluation

As an encouragement to engage in physical activity and cognitive stimulation, while promoting the active fruition and recognition of the artistic contents of the work itself, the project can act on a multiplicity of conditions of the people involved, from emotional and cognitive aspects to more strictly functional ones. The evaluation of the effects focused, among other things, on:

- **multidimensional frailty** of the participants;
- level of **resilience**;
- perceived level of **well-being**.

Expressed in counterfactual terms, the question which the evaluation sought to answer is “What is the well-being of the people who took part in DanzArte?”, “What would it have been if they had not taken part?”, where the difference between the “with” and “without” conditions captures the effect of the course.

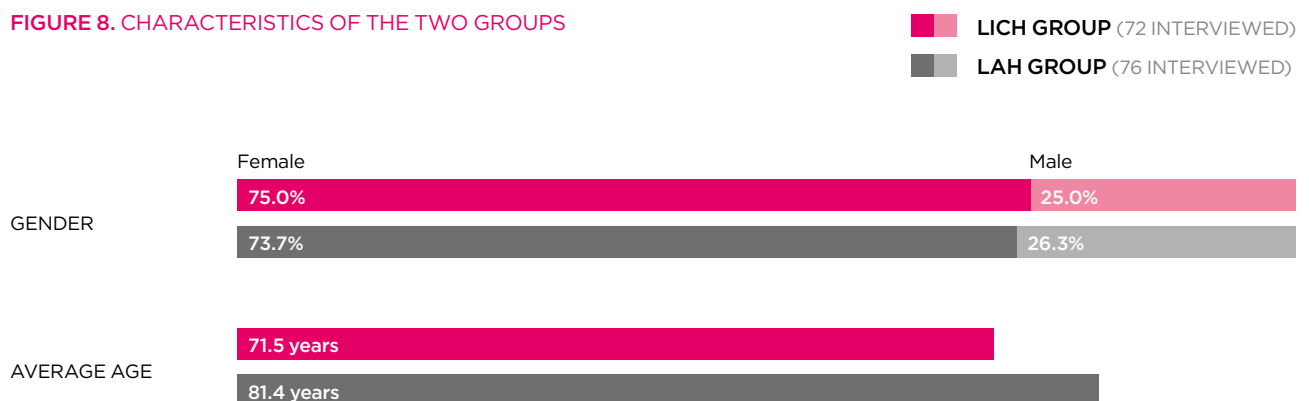
## Evaluation design

During the project, a small number of randomized experiments were carried out. The evaluation of the final effects was instead conducted with a **pre-post comparison**: the conditions of the participants were observed (largely with surveys via questionnaire) before the start of the activities, and then at the end of the activities, **about a month later**. The outcomes considered here were the degree of **resilience** (assessed using the validated RS-14, Resilience Scale), **multidimensional frailty** (MPI, Multidimensional Prognostic Index), **perceived well-being** (PGWBI-S, Psychological General Well-Being Index-Short). The effects are determined based on the difference between the final and initial conditions of the same people.

It is important to state that a pre-post comparison is generally a weak evaluation design. It is subject to the threat of so-called “spontaneous dynamics”, i.e. the possibility that the outcomes, like any natural phenomenon, are subject to changes over time for reasons independent of the intervention, which therefore would have occurred anyway. Rigour therefore requires us to consider a change over time as a mainly descriptive result, as the rigour needed to read it in causal terms is lacking. In this specific case, the analysis benefits from the fact that a rather limited amount of time elapsed between the first and the second survey, around a month, such that any spontaneous dynamics should have been limited, and any changes should be more easily attributable to the intervention.

The evaluation involved a total of 148 people, divided into two groups with different characteristics. In both cases, these are **over-65s at risk of frailty**, but the former are **people living at home (LAH)**, who participate out of interest or due to their involvement in cultural associations, while the latter are people living in **care homes (LICH)**. Considering the different frailties of the two groups, the analysis is conducted separately for one and for the other. Three quarters of both groups are made up of women (Figure 8). The average age of the LAH group (71.5 years) is predictably lower than that of the LICH group (81.4).

FIGURE 8. CHARACTERISTICS OF THE TWO GROUPS



Statistically significant differences for \*  $\alpha = 10\%$  \*\*  $\alpha = 5\%$ .

## Results

Firstly, an analysis of the **multidimensional frailty** of the participants does **not show significant variations** over the time span between the two surveys: the differences are clearly nil for both groups observed.

Secondly, in both cases, the analysis of perceived **well-being** shows **limited variations in terms of improvement**. Participation had a significant impact on LAH participants (varying between 72.5 and 75 out of 110, an increase of about 3.5%), while in LICH people the variation in the sample is positive, but not statistically significant. The researchers describe this result as predictable, given that, in the short term, it is easier to affect the perceived well-being of a group of more autonomous and less institutionalised people.

Finally, the analysis shows a **significant improvement**, this time limited to LCIH patients, in the degree of **resilience** (Table 4). The researchers underline the importance of this result because it relates to people less able to deal independently with adverse events.

TABLE 4. ESTIMATES OF EFFECTS

Variable	Range (min - max)	Average value of participants	Estimated effect
<b>CARE HOME RESIDENTS</b>			
Resilience (RS-14 Scale)	14 - 98	71.6	+3.2**
Multidimensional frailty (MPI Scale) <sup>1</sup>	0 - 1	0.4	-0.0
Well-being (PGWBI-S Scale)	0 - 110	67.5	+1.6
<b>PEOPLE LIVING AT HOME (LAH)</b>			
Resilience (RS-14 Scale)	14 - 98	81.0	-1.0
Multidimensional frailty (MPI Scale) <sup>1</sup>	0 - 1	0.1	+0.0
Well-being (PGWBI-S Scale)	0 - 110	75.1	+2.5**

1. For the MPI variable, the indicator reading is reversed, with situations of greater frailty corresponding to high values.

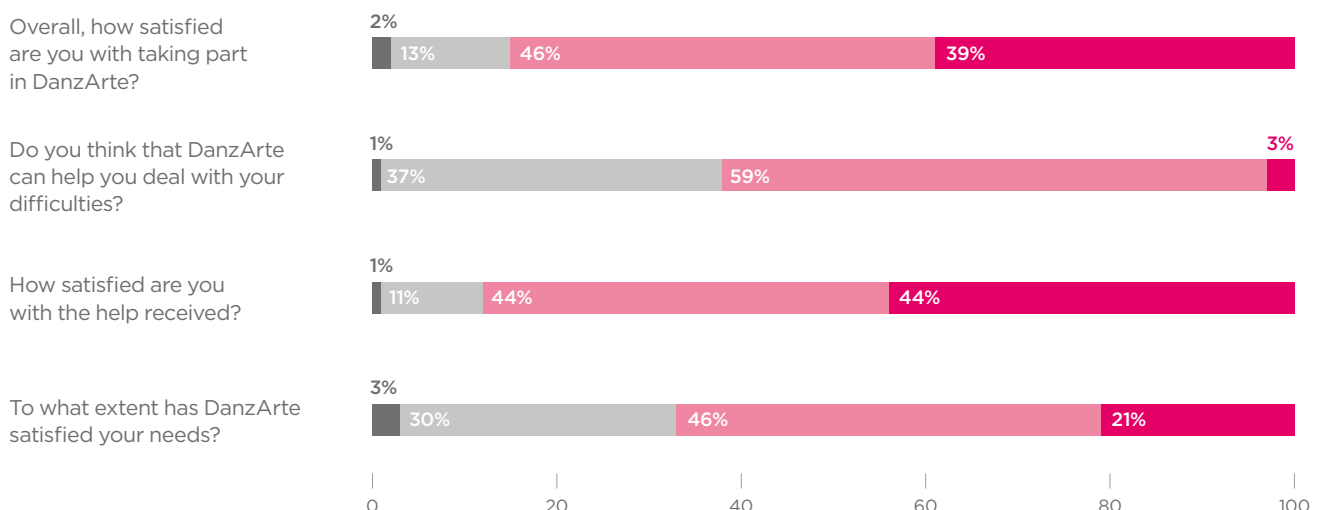
Statistically significant differences for \*  $\alpha = 10\%$  \*\*  $\alpha = 5\%$ .

## Satisfaction of participants

Project participants were also questioned about their satisfaction with the initiative (Figure 9). Two aspects were investigated: **general satisfaction** with involvement in the project and **perception of its usefulness** in addressing specific difficulties. The least positive opinions related to this second aspect: almost 40% said they were **not convinced that involvement** in the project **could help** them deal with personal difficulties, and around a third said they were not very satisfied with regard to their needs. However, there is a **high** level of **appreciation for the experience** in general, with 85% of positive opinions. This positive opinion is confirmed by the frequency with which participants say that they would recommend the DanzArte programme to a friend (84%).

FIGURE 9. SATISFACTION OF PARTICIPANTS

■ not at all ■ not much ■ moderately ■ a lot





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