

ASTRONOMY FOR MENTAL HEALTH GUIDELINES



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Astronomy for Mental Health Guidelines

INTRODUCTION

Even before the COVID-19 pandemic, mental health disorders such as depression and anxiety contributed significantly to the global burden of disease. The increase in stressors have only served to increase the prevalence of these illnesses in populations across the world. On the other hand, the measures taken to decrease the spread of the virus such as lockdowns and restrictions on social interactions—while necessary—have drastically reduced the type and quantity of coping mechanisms available for people to take care of their mental health.

In response to these problems, the OAD project ‘Astronomy for Mental Health’ aims to explore how astronomy can be a viable tool for improving mental well-being. Astronomy with its rich toolbox and mental health with its diversities make the ‘Astronomy for Mental Health’ journey both challenging and interesting. This guideline is one of the efforts to make this journey a smooth and safe experience.

PURPOSE OF THE DOCUMENT

Within the mental health and well-being space one can easily be overwhelmed by the sheer number of people in need of assistance.

These guidelines are an open collaboration with the aim of guiding any individual or organization through the process of setting up an intervention, event, activity, etc. within the mental health and well-being space.

The purpose is to provide an easy-to-use resource that will expedite setting up interventions, assist in overcoming obstacles and assist in avoiding common pit-falls that arise when planning and implementing an intervention.

The guidelines do so by:

- Serving as a toolkit and reference.
- Pooling together experiences of professionals with diverse backgrounds and skill sets.
- Providing practical tools and examples.

This guideline can also be quite helpful for those actively involved in astronomy outreach and education projects with an interest and capacity to integrate mental health aspects in their activities or to expand their projects to include people with mental health needs. The guideline can do this by suggesting practical steps for collaboration with psychologists, approaching support centers or working in humanitarian contexts.

TARGET AUDIENCE

The Astronomy for Mental Health Guidelines is compiled in such a manner that it targets; a) those within the OAD who will be directly involved with or wish to contribute to the astronomy for mental health project; b) organizations or individuals who wish to run astronomy inspired interventions or events; and c) mental health professionals or psychologists who might be interested to use some astronomy tools and ideas in their practice.

Throughout the guideline attention is given to make the material accessible and easy to use.

BACKGROUND

Astronomy for Mental Health is a flagship project carried out by the International Astronomical Union's (IAU) Office of Astronomy for Development (OAD). With a mission of "Astronomy for a better world", the OAD explores the vast potential of astronomy for sustainable development within its three flagship themes:

Flagship 1. Sustainable, local socio-economic development through Astronomy

Flagship 2. Science diplomacy through Astronomy: Celebrating our Common Humanity

Flagship 3. Astronomy knowledge and skills for sustainable development

The Astronomy for Mental Health project belongs to Flagship 2 and explores how the inspirational and cultural aspects of astronomy can help improve the mental well-being of vulnerable people and communities. The project takes into account three aspects: importance of mental health for development, inspirational potential of astronomy, and interdisciplinary collaboration for mental health.

Mental health for development

Mental health is central to development in different aspects. Firstly, mental health is our fundamental human right as much as physical health, and it is fundamental to overall health itself as it is widely accepted that there is “no health without mental health”. Secondly, mental health is a key in realizing our human potential, for being able to live and work effectively, for contributing to other people, and to the world.

Mental health is one of the most acute problems faced by humanity today. There are close to one billion people with different mental disorders, ranging from highly prevalent depression and anxiety to more severe disorders such as schizophrenia, bipolar disorder, etc., and there is very limited access to mental healthcare across the world. Unhealthy mental states affect all aspects of human life, causing suffering, leading to poor quality of life by affecting overall health, education, employment, and social relationships. Mental health problems are known to cause and be affected by other diseases, and are highly linked to suicide cases. The scale and impact of this problem makes it a serious development challenge.

Given its deep impact on development, mental health has been included in the global development agenda as part of Sustainable Development Goal 3 (Good health and well-being). Target 3.4. of SDG 3 calls to promote mental health and well-being. Moreover, mental health is cross-cutting across the SDGs and is fundamental to their realization. The COVID-19 pandemic affected SDG 3 and mental health was particularly affected. According to the official statistics, in the first year of the pandemic, the prevalence of depression and anxiety disorders had increased by 25 percent. It has been a wakeup call for everyone to pay more attention to this problem.

Considering the role of mental health for our overall health and for realization of human potential, as well as its challenging state in the current world, the Office of Astronomy for Development looks within the knowledge and tools of astronomy to contribute to good mental health.

The potential of astronomy for mental health

The documented positive impact of awe, dark skies and nature on emotions, relaxation and more has been a good starting point for exploring the healing power of astronomy. The beauty and vastness of the universe is a great source of awe. In addition, we see that research in behavioral sciences shows correlations between being exposed to a natural setting and recovery from stress and mental fatigue. Further, pilot studies show that stargazers felt emotionally connected to the natural world when participating in night-sky observations.

Benefits include enhancement in quality of life, a rise of positive and transcendent emotions, relaxation and personal growth. It is very important to know that stargazing can have positive benefits

on mental health and can empower individuals and communities afflicted by deep trauma or by psychological symptoms. We came to the conclusion that astronomy can make a difference. It has huge potential in terms of mental health by reducing anxiety, stress and negative feelings; strengthening self-esteem and helping with coping mechanisms; by giving hope and inspiring; as well as making people feel connected to each other and to nature.

The relevance of astronomy for different groups

For many years, the astronomical community has reached out to millions of people in different parts of the world and employed different tools to improve lives. These activities benefited vulnerable people from refugee communities, internally displaced children, young women, girls, extremely ill and traumatically injured children and their families, earthquake affected students, elderly population, people from rural areas, and many other groups. Here are several highlights why astronomy is relevant for these groups:

Refugees and displaced people

It is widely recommended to avoid over pathologizing these vulnerable groups and rather focus on building strength and resilience. Many coping mechanisms that enhance refugee well-being are an inherent part of astronomy, which are learning and cultural activities, spirituality, building of safe spaces, skills development, fostering of cultural identity, social inclusion, arts and recreational activities, inspiration activities, and more.

Children

More than 13% of adolescents aged 10-19 live with a diagnosed mental disorder and 50% of mental disorders are established before the age of 14. This highlights how children are in need of interventions that will help in both preventing and managing mental disorders.

Despite being a vulnerable group, children have an immense ability to adapt, develop and contribute. It is easy to neglect the contribution potential children. Children want to be included, they want to be engaged and they need things to aim for. Astronomy has the tools to allow for engagement while providing the individual with a means to improve mental health and well-being.

Elderly

The elderly face multiple problems. They face problems arising from aging bodies, they face mental health challenges, and they face the challenges within their society.

Many elderly people experience isolation, anxiety, dementia as well as other conditions. This alongside possible physical conditions might be a reason why depression is most common among the elderly. Elderly over 85 years of age have the highest suicide rate of any age group and despite this mental health services for elderly are severely limited.

Astronomy based interventions offers a means to engage the elderly, foster feelings of inclusion and social support (through group-based activities such as star gazing events) and assist in reducing anxiety and stress.

Care workers

Often those who provide care don't realize that they themselves need to be cared for. In an attempt to improve mental health and well-being of caregivers, astronomy offers a host of tools that can aid in reducing stress, anxiety and provide a chance for them to have their mental energy restored.

Astronomy ideas and tools with inspirational potential

The impact of astronomy on people can be multi-fold. The rich toolbox of astronomy can be accessed for:

- Cognitive inspiration
- Emotional inspiration
- Shared humanity

Cognitive inspiration can be incited by astronomy knowledge and ideas leading to the expansion of the worldview, change of perspective or complete paradigm shift through topics which reveal our cosmic address, give ideas about time and space, sizes and distances, dimensions and age of the Universe, the emergence of the Cosmos and life in it, light and how astronomers study distant objects, as well as knowledge from other science fields as astronomy is very much connected to other sciences.

Here is a non-exhaustive list of ideas to consider for cognitive inspiration:

- The sky as our clock and the calendar
- Constant journey of the Earth as a spaceship
- The existence of life on the Earth as a result of wonderful combination of many factors
- The Earth as tiny pale blue dot, our only home, extraordinary and fragile
- Interesting phenomena created in the sky from the movements of celestial bodies, such as day and night and eclipses
- Sizes, including the real vs visible, comparative sizes of stars, planets and galaxies
- Distances in space and looking at the past of the universe

These ideas have a potential to bring changes in the mindset and behavior, such as:

- Extend the worldview and open up the cultural borders
- Foster scientific thinking
- Perception of interconnectedness
- Develop critical thinking
- Self-awareness due to the expansion of perception
- Development of spatial orientation

Emotional inspiration can arise with exposure to awe through stargazing activities both in natural environment and through virtual reality experiences, images of cosmos from space telescopes, astrophotography, etc.

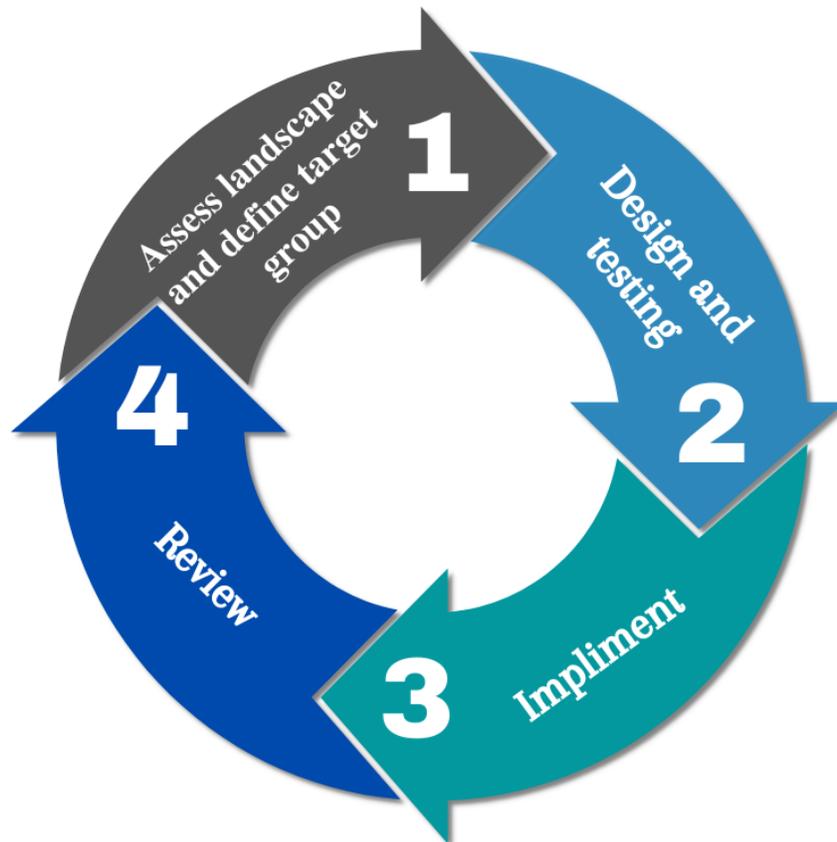
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The power of astronomy to bring people together can be another great tool to consider for activities. These can include topics and activities about being under the same sky, united around a common heritage, bound for the common causes, the earth from space without borders and we as all are the inhabitants of a blue dot in the sea of emptiness, the landing of humans on the Moon: the giant leap for humanity. This can bring environmental awareness, empathy, respect for other cultures, other people etc. Also, astronomy activities can give room for understanding, appreciating the beauty of life, finding like-minded people, forming meaningful relationships, etc.

[More tools and topics in Appendix 1]

GENERAL GUIDELINES TO GET STARTED IN PLANNING AN EVENT/ACTIVITY

This section will cover things to consider when planning an intervention, event, activity, etc. We will provide a broad framework consisting of four cyclical phases. It is recommended to complete the phases in order as each phase assists in laying the foundation for the following phase with phase 4 offering feedback for future projects (thus the cyclical nature).



Phase 1: Assess local landscape, define target group and Generate ideas

This is the initial phase where information is gathered. There is a multitude of things to consider during this phase. To assist in making it more manageable consider taking a macro, meso, micro approach.

Start by looking at the local landscape (macro), then move to groups or organizations you can partner with (meso) and finally define the target group (micro) who will be the recipients of the intervention. This approach will make it a lot easier when you reach the end of phase 1 and generate ideas.

How to assess the local landscape (Macro)

- Population
 - Consider the vulnerable groups, age demographics, health statistics, employment and literacy rate
- Legislation
 - What legislation is in place to deal with mental health.
 - Are there government bodies responsible for mental health?
- Local access
 - Access refers to the availability of services
 - How many clinics, hospitals, NGO's, NGOs and organizations service the local population
 - Distance from services to people
 - Is public transport available?
- Challenges to access
 - Economic factors
 - Awareness and stigma
 - Physical factors
 - Lack of resourcing and funding of organizations and institutions

Identifying potential groups/institutions to work with (Meso)

- Consider the type of intervention.
 - Will it be short or long term?
 - Will there be multiple interventions?

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- Will it focus on individuals, groups, families, or communities?

Identify who is working within the local landscape

- Identify the large role-players
- Get in touch with the community
- Are there any activist in the space?
 - Look at social media

Is the group/institution open to collaboration

- Some groups and organizations might appear to be a good fit but they themselves might not currently be interested in collaborations or starting new projects or interventions.
- You will have to show the value that can be gained from collaboration.
- Some organizations might want to see a proven track record in which case you should return to them after initial pilot projects wrap-up.
- Groups are resilient to change and there might be a need for psychoeducation and trust building to take place prior to moving on to collaboration.

What makes for an attractive group/institution?

There are many factors that make a group/institution attractive with regards to collaboration. Consider organizations and centers open to innovation. These are attractive as collaboration will run smoothly while also providing new insights and generating new ideas. Even organizations that are small and perhaps just starting out could be valuable collaborators

When looking at what makes a group/institution attractive it is worthwhile considering what the ideal partner would be.

The ideal group/institution would:

- Have a strong foothold within the local landscape
- Be active in supporting mental health care users
- Have many interventions that are ongoing
- Be open to collaboration
- Already be actively looking at starting new interventions/programs
- Have staff members that would be willing to run the proposed interventions
- Be trusted by the community
- Be representative of the local population in terms of staff ethnicity, language, gender and age groups

Define target group (Micro)

Defining a target group is important as it will determine various factors. The target group will determine the level information is presented at depending on the target group's literacy level. The target group will impact on the activity's resources, presentation and even how the activity will be evaluated or tested.

When defining a target group, you might want to consider targeting according to one or more of the following demographics:

- Age
- Gender
- Ethnicity
- Location
- Socio-economic status
- Mental health challenges
- Well-being challenges
- Etc.

You could also include aspects such as interest or shared experiences.

Defining a target group will allow you to focus and tailor the activity to meet their needs. It is however important to note that although more criteria will increase the focus it will also exclude more and more potential participants.

Consider using the target group tool (<https://www.nesta.org.uk/toolkit/diy-toolkit/>).

Brainstorming

Whether alone or within a group, brainstorming will be used to generate a broad range of ideas that we can use within the next activity.

SWOT analysis

Having generated ideas, identify the most promising ones. Then conduct a SWOT analysis. By taking an idea and breaking down the Strengths, Weaknesses, Opportunities and Treats we gain a richer understanding of what the idea can offer.

The SWOT analysis will also aid in reducing the number of ideas generated during the brainstorming allowing focus to be placed on the most promising ideas.

Following the SWOT analysis, we can expand on the selected idea. This expansion includes identifying the resources available and what resources are needed as well as the plans for accessing those resources.

Phase 2: Design and testing

Having an idea that shows promise and knowing the weaknesses and challenges it is time to move over to design and testing.

This is likely going to be the most demanding phase of the four phases. Starting with the design some components to consider is the following:

- Clearly define target group
- Constructing a mock-up/beta
- Consider using the tools (<https://www.nesta.org.uk/toolkit/diy-toolkit/>):
 - Experience map
 - Prototype testing Plan
 - Improvement Triggers

Construct a mock-up/beta

At this point you should already have a clear idea of the following:

- What you want to do,
- Who you want to reach,
- How you want to reach them.

Now is time to construct a mock-up/beta. If it is an event this will be when you plan a pilot event. The purpose here is to have an intervention that you can use and that can be evaluated.

Once you are satisfied that everything is ready for implementation it is useful to take some time in determining how you will get feedback, measure results or track outcomes. This will be informed by the intervention and target group and will serve as a major aid during Phase 4: Review.

Phase 3: Implement

Implementation phase simply involves the process of using the tool, running the pilot, using the activity, etc.

What comes into play during this phase is the practical considerations such as:

- Is the venue/space set up
- Are materials ready
- Is there a plan in place in case of a, b, and c?

Useful tools include (<https://www.nesta.org.uk/toolkit/diy-toolkit/>):

- Critical task list

During the implementation it is very useful to capture data that will assist in the review phase.

Phase 4: Review

Having finished an implementation (even if it is a single day event/activity) it is crucial to review the implementation. This will provide valuable feedback and assist in learning and improving future activities.

Useful tools include (<https://www.nesta.org.uk/toolkit/diy-toolkit/>):

- Learning loop

The review phase is also a great time to summarize the outcome of the implementation, activity or event. In the summary you want to try and include things like lessons learnt and recommendations for future implementations.

INTEGRATING MENTAL HEALTH IN ASTRONOMY OUTREACH AND EDUCATION PROJECTS

In order to effectively implement an astronomy outreach or education project for a specific mental health outcome, a close collaboration with mental health professionals is needed. This can be done in different ways, some of which are the following:

1. Consultation with a psychologist to co-design activities and/or develop assessment tools
2. Collaboration with support centers, care centers, mental health facilities
3. Implementation of activities in humanitarian settings

Consultation with a psychologist to co-design activities and/or develop assessment tools

As much as astronomy has a rich toolbox to inspire and fascinate people of different ages, psychology has various methods to help people improve their mental health and reach their human potential. Consultation with a psychologist will help:

- Enrich astronomy activities with new elements from the toolbox of psychology

Astronomy activities can be enriched with elements which enhance imagination, creativity, reflexivity, relaxation, including story-telling, poetry, music, art, visualization, mindfulness, etc.

- Exclude elements that could do harm

As much as the night sky and astronomy topics are beautiful, they can be frightening for some people. For example, patients with phobia may be scared of large sizes and distances in space.

- Develop a tool for measuring the impact of activities on mental health

Measuring and recording the results can help understand the effectiveness of interventions, adjust and improve them. It can also give insights for specialists and researchers.

Collaboration with support centers, care centers, mental health facilities

Bringing astronomy outreach and education projects to support centers can make astronomy for mental health interventions easier to organize. In particular, it can give an opportunity to collaborate with a specialist or a group of specialists with different profiles (art therapist, social worker, psychiatrist, psychologist, etc.) who know the background of the group. This will help:

- Better assess the impact of interventions, especially analyze specific cases in details
- Track the long-term impact of astronomy interventions on mental health or change in life
- Tailor the activities to the specific group both for more impact and for excluding any harm.

Implementation of activities in humanitarian settings

Nearly all those affected by humanitarian emergencies as a result of wars and disasters face mental health challenges. While it is very important to provide support to these groups, these interventions can be more challenging. The activities should be coordinated with humanitarian actors and need to comply with humanitarian principles, including:

- Respect for local customs and culture

- Doing no harm
- Respect of dignity
- Acting with compassion and tolerance
- Responsible use of information

Activities in humanitarian settings should be done in collaboration with local humanitarian actors and support groups to ensure that they are relevant for the group, these principles are reflected in the work and they contribute to mental health.

In case no collaboration is possible, astronomy projects and groups can set up their mechanisms to collect feedback from visitors and audience to adjust the activity for the needs of a group. This can be done through short surveys shared with the group before the activity, asking the participants, visitors and audience to provide feedback about astronomy topics that inspire them or mental health conditions they wish to improve, etc.

Considerations, risks and sensitivities within mental health/well-being

When considering which mental health or well-being issue to target there are a variety of factors to consider. Consider the following thought points (these are not as much of a guideline as it is things to think through):

- Stress, anxiety and depression. These are experiences that are common, affect many people and allow for a wide range of non-pharmaceutical interventions. Interventions targeting these allow for shorter interventions and avoids psychotherapy and reliance on the event/activity.
- When looking at mental health and well-being it is good to consider that mental health conditions can affect people differently and the severity can be gauged on a spectrum.
- All mental health and well-being issues can be incorporated with support of relevant local structures, input and collaboration with specialists in the field and sufficient consideration to ensure no harm is done to participants but it is important to be aware of the limitations and risks.
- Have a referral network for participants set up before implementation
 - Referral network here refers to psychosocial services. This can be a call-in service, in person therapy, etc. What is important is that it is established prior to implementation.
- Unless specifically designed to be, the intervention is not a therapeutic intervention. As such it is important to clarify to members what the intervention aims to do.
 - Despite clarification, it might still happen that participants start wanting to talk about or focus on their mental health diagnosis/condition.

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- It is worth referring these participants for individual therapy and support.
- It is also in the best interest to have the mental health diagnosis/conditions be dealt with by a mental health professional. It can be explained to the participants that the intervention is not meant to replace their therapeutic care.

Risk to consider

A key aspect to any activity is that it should not cause any physical or psychological harm. Some topics and experiences are very loaded with emotions that could cause psychological harm during activities that encourage recall. This however does not mean that interventions should not focus on them.

What is important is to plan well. Throughout the planning phase approach, it with the view that things will go wrong and the message you are presenting will be taken in the worst way. Having done this put in place measures to deal with any possible experiences that might arise during the implementation.

When working with mental health and well-being it is always recommended to have a referral network set up and ready. Should a participant experience psychological harm during an intervention you can de-escalate, normalize emotions and refer to your setup network.

Sensitivities to consider

When working with people we should acknowledge that everyone comes from a different background. This is important to be aware of because we do not want someone to miss out on what we are trying to achieve because of feeling offended.

We should strive to plan for sensitivities such as:

- Different religious views
 - You can ask participants if there are religious or traditional customs you should be aware of.
- We should avoid labeling and not focus on the mental health diagnosis
 - Rather focus on the strengths of the individual and the benefits astronomy can provide.
 - It is a space for participants to feel safe and understood and not a counseling setting.
- Where possible have the person presenting be a native speaker of the language of the group in order to minimize misunderstanding.

Special consideration for mental health needs across age groups and vulnerable groups

When considering the target group there might be special considerations. These special considerations include:

- Is the target group within a natural setting (e.g., their native country) or have they been displaced?
- Is the target group in a period of crisis due to conflict, disaster or other influences?
 - It is important to be aware of the context in which your intervention will take place. If participants are in a situation where other basic needs are not being met or there is instability/change within their lives they might not be able to benefit from an intervention.
 - It might very well be worth while stopping the planned intervention and leaving it for a more suitable time.
 - Alternatively, if possible, it will be even more effective and foster good faith if the intervention is postponed and focus is diverted to finding ways of assisting the target group overcome the period of crisis.
- Considering the chosen age group are their cultural considerations you need to look at?
- Is the group a vulnerable group?
 - How is the vulnerable group treated within the local context?
 - Is there any stigma to be aware of?
 - It is especially important that participants don't feel targeted due to being classified as a vulnerable group. It is necessary to indicate to the participants why they were selected and if it is because they are a vulnerable group then motivate why you are looking at working specifically with that vulnerable group.
 - If your intervention targets a vulnerable group; will it be exclusive to those within the vulnerable group? If so, then motivate why.

EVIDENCE BASED LITERATURE COLLECTION

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APPENDIX I: ASTRONOMY IDEAS AND TOOLS WITH INSPIRATIONAL POTENTIAL

This section aims to provide resources that can assist to plan your activity. There is a diverse selection of tools and resources but it is by no means exhaustive. The section merely serves as a starting point.

Art activities:

- Nasa Art and the Cosmic Connection, educational activities for grades 3 - 10. “Using the elements of art — shape, line, color, texture, value — students make sense of images of planets, asteroids, comets and moons, honing observation skills and inspiring questions.”
 - Classroom project resources and background:
<https://www.jpl.nasa.gov/edu/teach/activity/art-the-cosmic-connection/>

STEM:

- Jet Propulsion Laboratory - Teach is a collection of educational activities freely available online:
<https://www.jpl.nasa.gov/edu/teach/tag/topic/Astronomy>
- SciTech Institute is focused on cultivating an ecosystem of conscious STEM communities through awareness, connections and empowerment.
 - STEM resources: <https://scitechinstitute.org/resources/>

Stargazing apps:

- Stellarium is an interactive planetarium program that allows you to explore the night sky from any location on earth, at any time of the year.
- Stellarium Astronomy Software: <https://stellarium.org/>
- Trailer: <https://www.youtube.com/watch?v=qsOongkRvIE>
- The AAS WorldWide Telescope is a software environment that enables a computer to function as a virtual telescope, combining terabytes of imagery from such famous telescopes as Hubble, Chandra and Spitzer into one vast panorama of the universe.
 - WorldWide Telescope: <https://worldwidetelescope.org/>
 - Trailer: <https://www.youtube.com/watch?v=DOyBwdS-HE4>
- Celestia is a real time 3D Visualization of Space to travel throughout the solar system, to any of over 100,000 stars, or even beyond the galaxy.
 - Celestia Space Simulator <https://celestia.space/>

Images:

- NASA, Astronomy Picture of the Day <https://apod.nasa.gov/apod/astropix.html>
- NASA Spitzer Space Telescope Images
https://www.nasa.gov/mission_pages/spitzer/images/index.html
- NASA Hubble Space Telescope Images
https://www.nasa.gov/mission_pages/hubble/multimedia/index.html

Videos:

- The Beautiful Universe: Video Tours of Chandra Images and Science:
<https://youtube.com/playlist?list=PLkVRJfUnLRNICn94JL5Qq-hqz43vNtoBc>
- 360-Degree Video: An Immersive Visualization of the Galactic Center:
<https://www.youtube.com/watch?v=YKzxmeABbkU>

VR:

- Chandra X-ray Observatory, Galactic Center VR:
<https://www.youtube.com/watch?v=-q6xnRAWdc0>
- NASA's Exoplanet Excursions TRAPPIST-1 VR 360
<https://www.youtube.com/watch?v=cL1WbM2FSyQ>

Sonification:

- Galaxies and distances: <https://astrosom.com/Jan2018.php>
- 5000 Exoplanets: Listen to the Sound of Discovery (NASA Data Sonification)
<https://www.youtube.com/watch?v=yv4DbUICWAY&t=22s>
- Supernova Discoveries: https://www.youtube.com/watch?v=CC_6skBtZHW&t=5s
- Chandra X-ray Observatory, Tycho's Supernova Remnant
<https://www.youtube.com/watch?v=OmhxMdS-Q9E&t=18s>

APPENDIX 2: OAD’S ASTRONOMY FOR MENTAL HEALTH PROJECTS

OAD’s Astronomy for Mental Health project aims to explore how the inspirational and cultural aspects of astronomy can help improve mental well-being of vulnerable groups, working in collaboration with astronomers, psychologists, mental health professionals, social workers and other specialists.

The project looks at the importance of mental health for development and the inspirational potential of astronomy, as well as explores the relevance and impact of astronomy on mental health for different groups, focusing its initial efforts in Armenia, Spain and South Africa.

OAD’s Astronomy for Mental Health project aims to build collaborations and further expand its activities in different parts of the world. We invite you to collaborate to co-design and implement activities by sending an email to mentalhealth@astro4dev.org or submitting an interest through OAD’s Collaboration Gateway.

More information about the project is available on the website:

<https://www.astro4dev.org/flagship-themes/celebrating-our-common-humanity-astronomy/astronomy-mental-health/>

About activities in Armenia



In Armenia, a four-day educational project was organized for participants from a local children support center. The program was developed using available astronomy resources, its main themes being motions, sizes and distances of celestial objects in our Solar System and astronomical events observed from the Earth. Different inspirational tools were employed during the lessons, including stargazing sessions, hands-on-activities, demonstrations, and audio-visual materials.

The program was carried out with the guidance of the psychologist from the support center and was assessed by questionnaires and individual interviews. Remarkable signs of change in the behavior and mood of children were visible even during the activities. The assessment was done in cognitive, emotional and value areas. Results show that the value of interpersonal relationships became more emphasized. There were clear signs of motivation, change in value system, openness and absence of negativism a participant with clinical depression. Also, worth noting that a participant with phobia and existential fear had a slight increase in his assessment of fear which was confirmed during individual interviews with the psychologist. It may be possible that the mystery and uncertainty in the universe can increase the fear and panic for people in some case.

As a result of this first intervention and collaboration with the psychologist, it is recommended to consider both theoretical and practical parts of the topic again and for a longer period for teenagers with clinical depression, at the same time excluding any medication and psychotherapeutic intervention for the same period, in order to better understand what kind of impact the topic can have on this group. As of the initial observation, the change from fixation on the self and personal emotions to larger dimensions could bring certain changes in their worldview.

It is also recommended to discuss with a psychologist when conducting astronomy activities for people with existential fears and fears related to death, anxiety disorders.

For the next pilot activities for displaced children, the program has been adapted to meet the needs of this special group. Activities are co-designed with the psychologist and a physics teacher from a displaced community to minimize any harm and maximize the inspirational benefits of different astronomy topics. The program is made of elements of building connection with nature, imaginary travel through space, dreaming and goal-setting exercises and return to the Earth.

About activities in Spain



The OAD team has been collaborating with the “Fundación Alicia y Guillermo”, a local association for elder people in Madrid, Spain, to promote astronomy talks tailored specifically for them. The series of talks had a twofold goal:

4. To provide access to a different type of activities for this target group, which is usually presented with very limited (and stereotyped) options for their daily activity.
5. To preliminary assess if Astronomy can contribute to the mental well-being of this group.

The pilot activities, organized during June 2022, had a hybrid format with some participants physically attending the talks at the Foundation’s premises, others connected individually from home and others connecting remotely from elderly centers in Madrid and North Spain regions. In total, around 23 people participated in each activity, making a total of about 90 people in 4 talks.

Four talks were delivered on the topics: “A Voyage through the Cosmos”, “Exploring the Solar System with ESA missions”, “Impacts and how to avoid them” and “The Red Planet”.

The presence and encouragement of the Foundation's staff during the whole time provided a relaxed atmosphere in which the participants felt motivated and engaged.

Indeed, many questions were formulated during and after the talks from both the face-to-face and online audience. Two types of questionnaires were applied for this series of talks. A PANAS psychological survey before the first talk and after the last one for a reduced number of participants. And a general motivation/interest test for all participants was applied after the last talk.

The average age of the participants was 78 years old and the answers, still under analysis, show a high degree of satisfaction with the activity and that it has greatly contributed to enhancing the participant's self-esteem and rise of positive emotions.

This was a pilot program, which we plan to continue and expand after summer, with the collaboration of the astronomical community in Spain and under the framework of the Spanish Astronomical Society.

About activities in South Africa



The OAD team, on 11 July 2022, hosted an astronomy for mental health workshop for the Cape Town Community Mental Health and Psychiatry Foundation (CMHPF).

The CMHPF has around 120 staff members and 40 students. The staff care for around 300 residents. The residents mostly suffer from schizophrenia and bipolar with varying degrees of severity. All of the residents are long term residents and the age distribution is from 24 to 90 years of age.

The workshop had the following goals:

- Demonstrate the potential that astronomy can have in improving mental health and well-being.

Astronomy for Mental Health Guidelines

- Identify needs and challenges that the OAD can assist with.
- Improve the mental health and well-being of the participants.

There were 20 participants and participant feedback indicated that the goals were achieved. Participants noted that the workshop allowed them to experience how astronomy can be used as a tool in the mental health setting. The workshop also helped the participants to experience how astronomy can assist in alleviating stress and recharge mental energy.

A major part of the workshop involved brainstorming future activities, programs and interventions. Following this; the future plans are, in consultation with an occupational therapist and clinical psychologist, to visit the residential facilities of the CMHPF and create tailored activities for the mental health care users residing there.

Other activities include:

- Development of psycho-educational materials such as interviews, videos, and infographics.
- Linking organizations such as the Astronomical Society of Southern Africa (ASSA) and Amateur Astronomy Association with organizations and mental health support groups.

For more info on the South African mental health landscape, you can view the short report at <https://www.astro4dev.org/astronomy-for-mental-health-in-south-africa/>

APPENDIX 3: EXAMPLE INTRODUCTORY EMAIL

General

Dear -----,

We hope this email finds you well. We approach you on behalf of the IAU Office of Astronomy for Development (OAD) and as members of the “Astronomy for Mental Health” project.

In the last few years, Mental Health has become an issue of increasing importance, especially with the COVID-pandemic that has spread all over the world and has forced people into isolation, making it more difficult for them to get access to mental care.

Mental well-being is an essential aspect of human development, therefore included in the United Nation Sustainable Development Goals and its 2030 agenda. Different social groups face unique challenges regarding Mental Health. Over the past years, the OAD has been supporting many different initiatives proposing concrete actions that can be carried out in order to contribute to the mental well-being of those groups.

Astronomy has a unique potential to inspire and elicit a feeling of awe, which, according to different studies, gives rise to positive emotions and strengthens self-esteem. Stargazing is an activity that happens in nature and, therefore, combines the greater-than-the-self and temporary-scape feelings produced by Astronomy with the benefits of being exposed to natural environments: reduction of stress, mental fatigue, depression rates...

Within the OAD Astronomy for Mental Health project, we are currently in the stage of compiling information on astronomy activities with the most inspirational potential, looking into cognitive and emotional aspects as well as the power of astronomy to bring people together. We aim to collaborate with psychologists, astronomers and other specialists to co-design activities and pilot them in different countries, with refugees and other groups in need, as well as people negatively affected by the pandemic.

We are therefore reaching out to you to explore potential collaborations and would be very pleased if you/your institution would consider joining us in this venture. Your expertise would indeed be a valuable asset to the project.

If you would like to know more about the Mental Health project, please take a look at the materials we have prepared for the OAD collaboration gateway. Of course, we would be more than happy to arrange for a meeting to discuss.

Best wishes,

The Astronomy for Mental Health team

Astronomy for Mental Health Guidelines

mentalhealth@astro4dev.org

For Advisory Committee -- add this paragraph

We aim to collaborate with psychologists, astronomers and other specialists to co-design activities and pilot them in different countries, with refugees and other groups in need, as well as people negatively affected by the pandemic.

We are therefore setting up an Advisory Committee with experts from different fields to help us explore the full potential of Astronomy for Mental Health and advise us with their expertise through the different phases of the project.

We would be very pleased if you would consider joining our Advisory Committee since we believe counting with your experience and knowledge would indeed be a very valuable asset to the project.

Please let us know if this is something you would be interested in. Our idea is to arrange for a meeting in May to present the whole project to the Advisory Committee and discuss the next steps forward.