



Paint and Prevent

A MASTER'S THESIS PRESENTATION
HAMARA, EMMI & WATSON, NOEMI
WITH LAUREA UAS & ART IN TANZANIA 2021

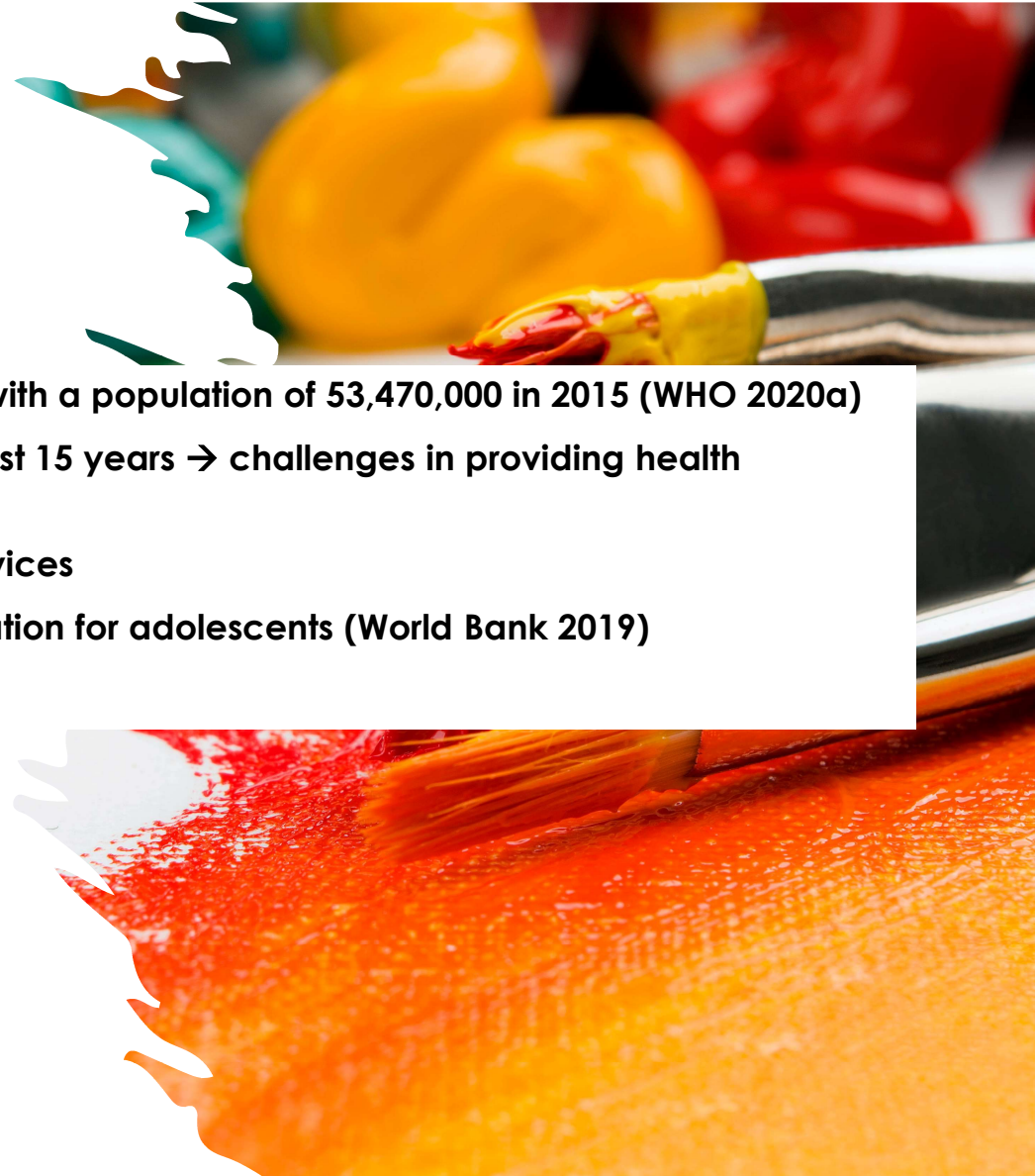


Introduction

- The intervention study investigates a visual arts-based approach to teaching Tanzanian adolescents' handwashing skills and knowledge
- A handwashing campaign was held in Tanzania in March and April 2021
- A framework for a visual arts- based handwashing workshop was created together with Art in Tanzania, an NGO based in Finland and Tanzania
- Health education aims to positively influence a person's health related knowledge, attitudes and behaviours, and informs them about lifestyles and behaviours that prevent illness (ECDC 2020)
- By increasing people's knowledge and social skills they can be helped to make healthier choices and decisions which affect them and their families. (WHO 2018b)

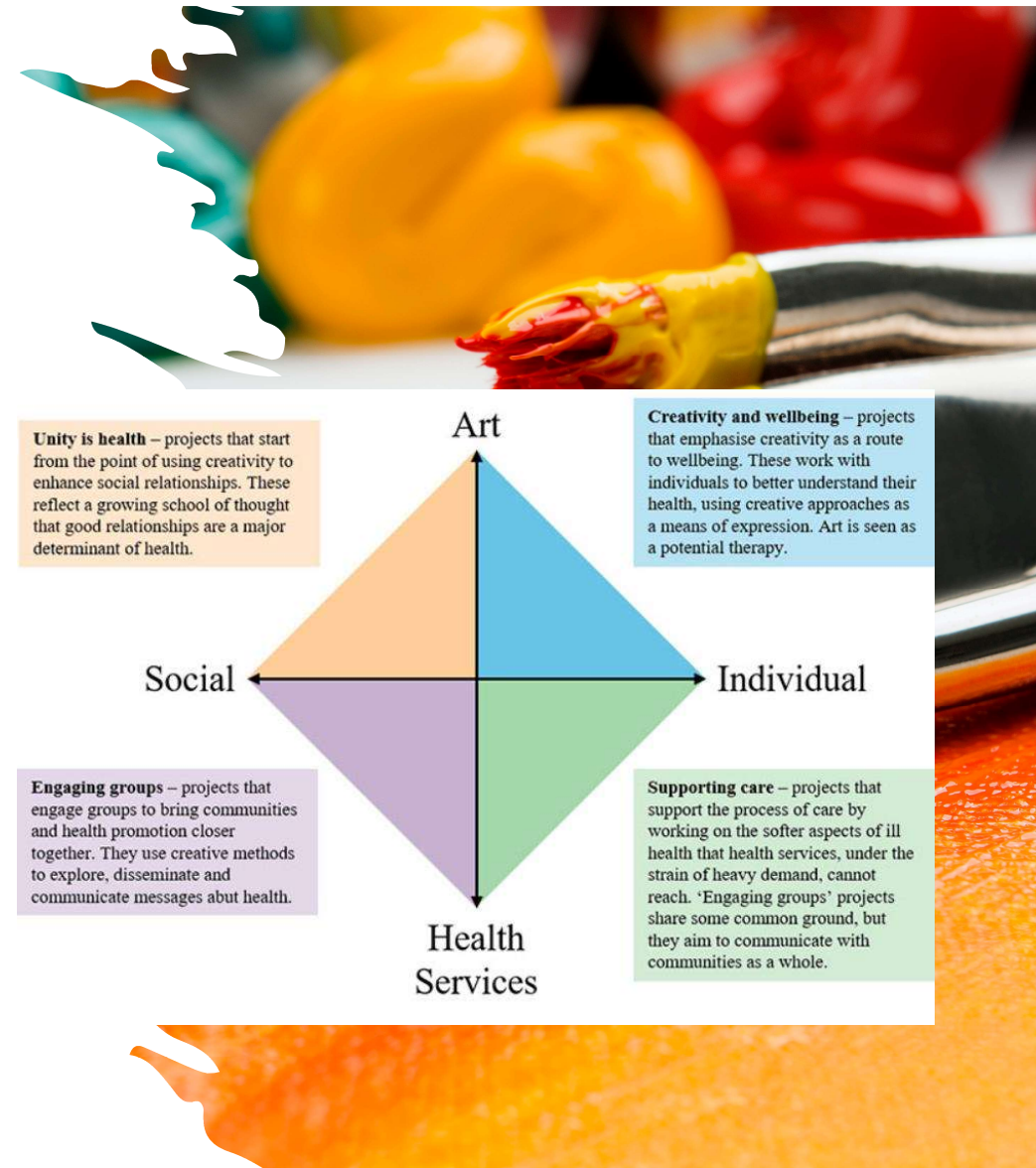
United Republic of Tanzania

- **United republic of Tanzania is an East-African country with a population of 53,470,000 in 2015 (WHO 2020a)**
- **Tanzania has increased its population by 45% in the past 15 years → challenges in providing health education for its youth (World Bank 2019)**
- **Youth has limited access to health information and services**
- **Tanzania should put greater emphasis on health education for adolescents (World Bank 2019)**



Arts in Health

- No standardised definition (Fancourt 2017, 68) → for example:
- **“Creative activities that aim to improve individual or community health using arts-based approaches, and that seek to enhance healthcare delivery through provision of artworks or performances” (White & Hillary 2009)**
- **“a range of arts practices occurring primarily in healthcare settings, which brings together the skills and priorities of both arts and health professionals” (Arts Council of Ireland 2010)**

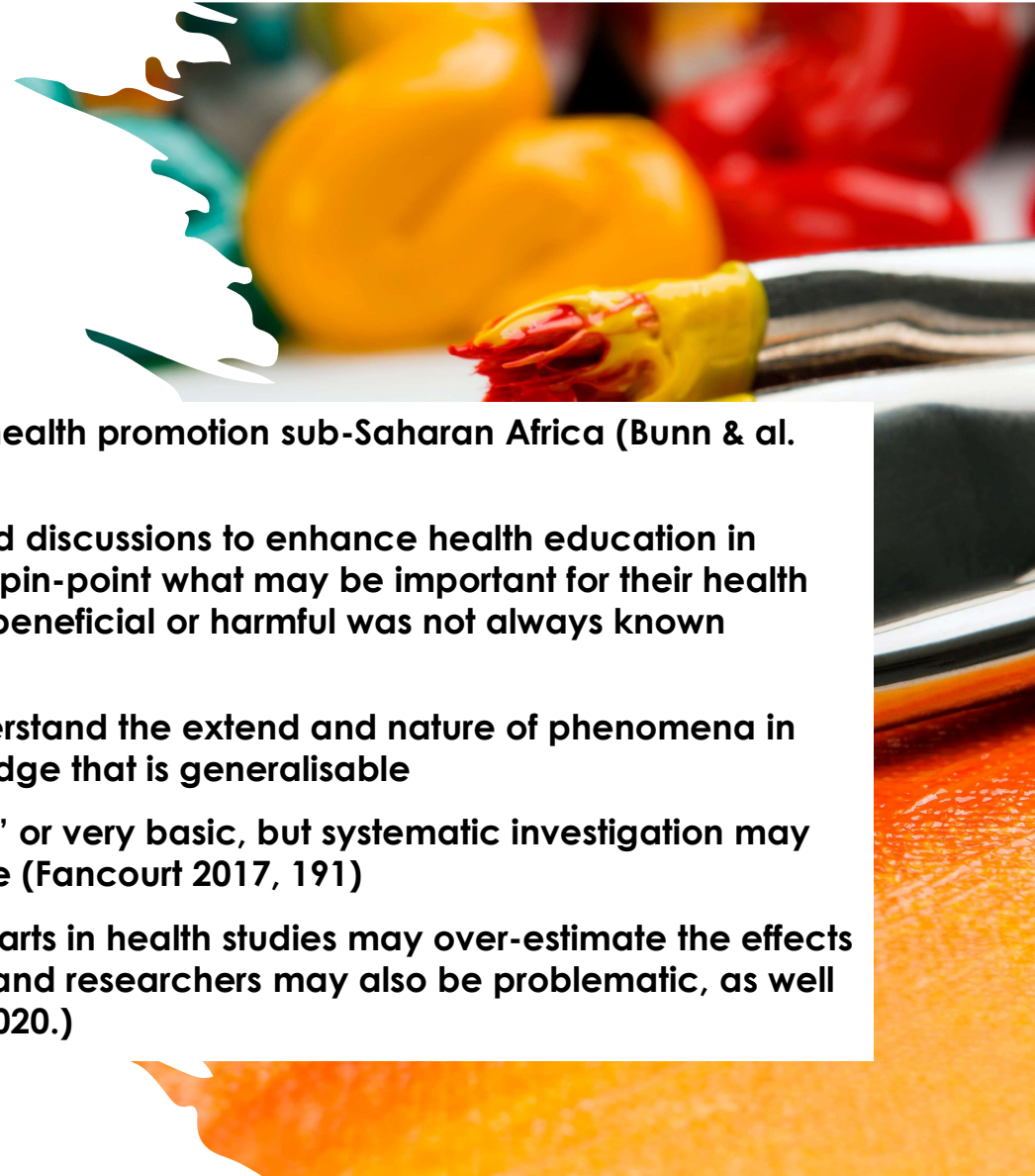


Arts in Health

- A broad range of art forms can be utilized, targeting any major health issue
- The target group may vary, e.g: people at risk, those having a condition, and recoverees, their families, friends and even health care staff (Fancourt 2017, 68.)
- TV/radio, visual arts, film, photography, photovoice, storytelling folk media, such as dance, and craft, as well as even circus, comedy and puppetry, have the capability to engage participants in changes which are beneficial for health (Bunn & al. 2020)
- Visual arts program with adolescents for empathy development in school settings → visual arts with adolescents is a tool for self-exploration (Bianchi 2014)
- Arts can teach children self-efficacy beliefs as well as originality, an important part of creativity → Learning originality may lead to having an expansive view of the world. These outcomes may be beneficial, especially for children raised under educationally and socially underprivileged backgrounds (Catterall & Peppler 2007)
- Art challenges a child in a cognitive way: they struggle and try to learn a technique, while receiving feedback from peers and teachers, and facing the publicity of a classroom. Although facing these challenges through learning other subjects, art room sessions may lead to a child responding more actively and deeply (Catterall & Peppler 2007)

Arts in Health

- A variety of art forms have and could be used for health promotion sub-Saharan Africa (Bunn & al. 2020)
- The effects of songs, poetic dramas, short plays and discussions to enhance health education in primary schools in Tanzania → Children were able to pin-point what may be important for their health but recognizing the reasons why something may be beneficial or harmful was not always known (Lansdown & al. 2002)
- Studying arts in health interventions may help understand the extent and nature of phenomena in the field, engage stakeholders, and produce knowledge that is generalisable
- It may seem the study question is “common-sense” or very basic, but systematic investigation may bring up new aspects and ideas not thought of before (Fancourt 2017, 191)
- Sometimes the quantitative methods deployed for arts in health studies may over-estimate the effects of the interventions. Inequality between participants and researchers may also be problematic, as well as culturally inappropriate interventions (Bunn & al. 2020.)



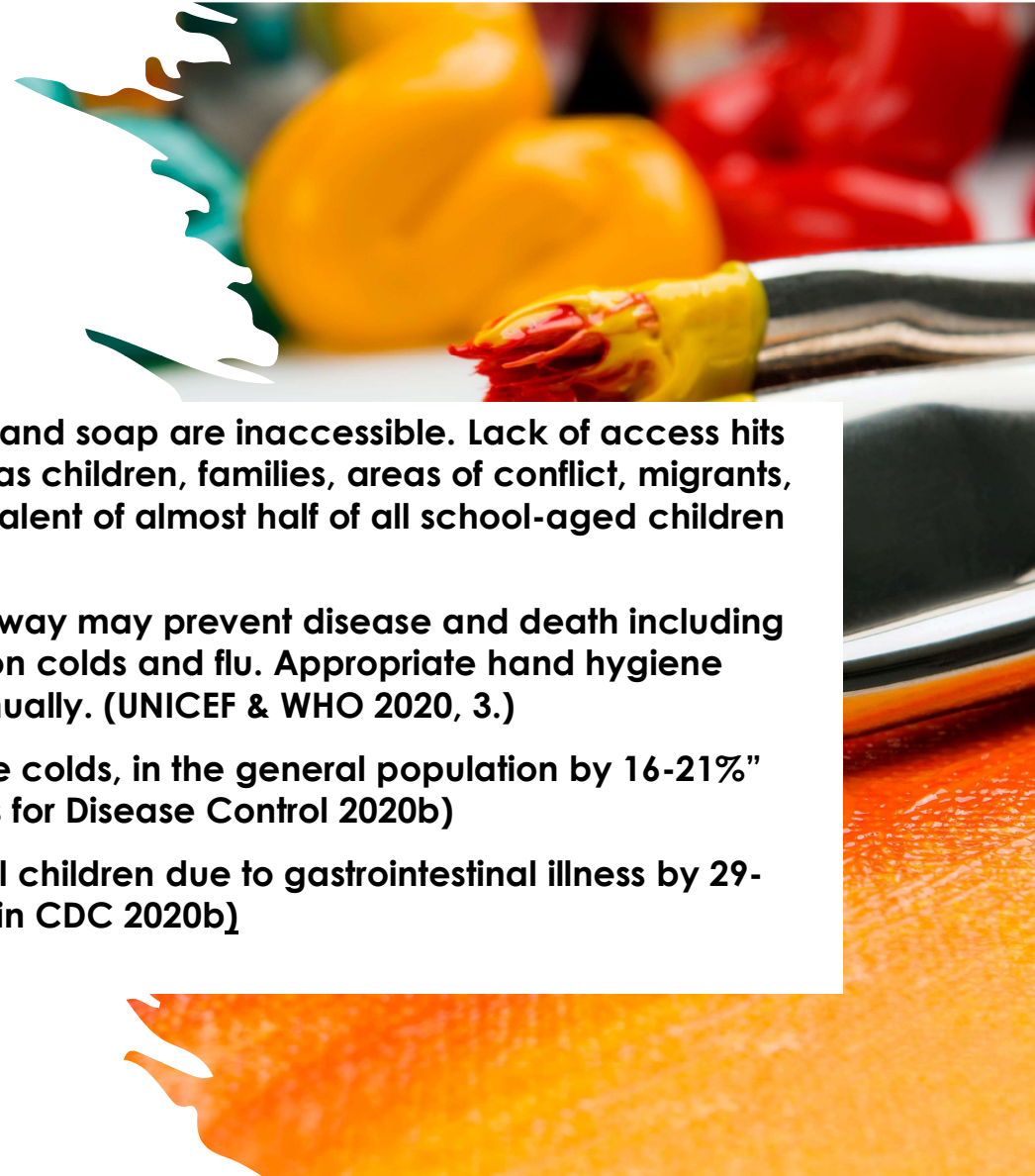
Adolescents as health learners

- Globally, adolescents are among the most at-risk populations in healthcare, and they consume the least of any health services
- Adolescent health should focus on health promotion and interventions to serve the greater good of the population
- Nursing strategies for facilitative learning have two categories:
 - Learning (addressing environment, manipulation, rest period, relaxation techniques, reduced stimulus and reduced overload)
 - Remembering (addressing repetition, rehearsing, overlearning). (Bastable 2019.)



Handwashing in infection prevention

- **40% of the world's population live in areas where water and soap are inaccessible. Lack of access hits mostly the poorest countries and vulnerable groups, such as children, families, areas of conflict, migrants, and refugee camps. 900 million school children, the equivalent of almost half of all school-aged children lack handwashing facilities. (UNICEF & WHO 2020, 2.)**
- **Good handwashing strategies implemented in the right way may prevent disease and death including common diseases such as diarrhoea, pneumonia, common colds and flu. Appropriate hand hygiene could prevent up to 165,000 diarrhoeal related deaths annually. (UNICEF & WHO 2020, 3.)**
- **Handwashing education “reduces respiratory illness, like colds, in the general population by 16-21%” (e.g. Aiello, Coulburn, Perez & Larson 2008 cited in Centres for Disease Control 2020b)**
- **Handwashing education reduces absenteeism of school children due to gastrointestinal illness by 29-57% (Wang, Lapinski, Quilliam, Jaykus & Fraser 2017 cited in CDC 2020b)**



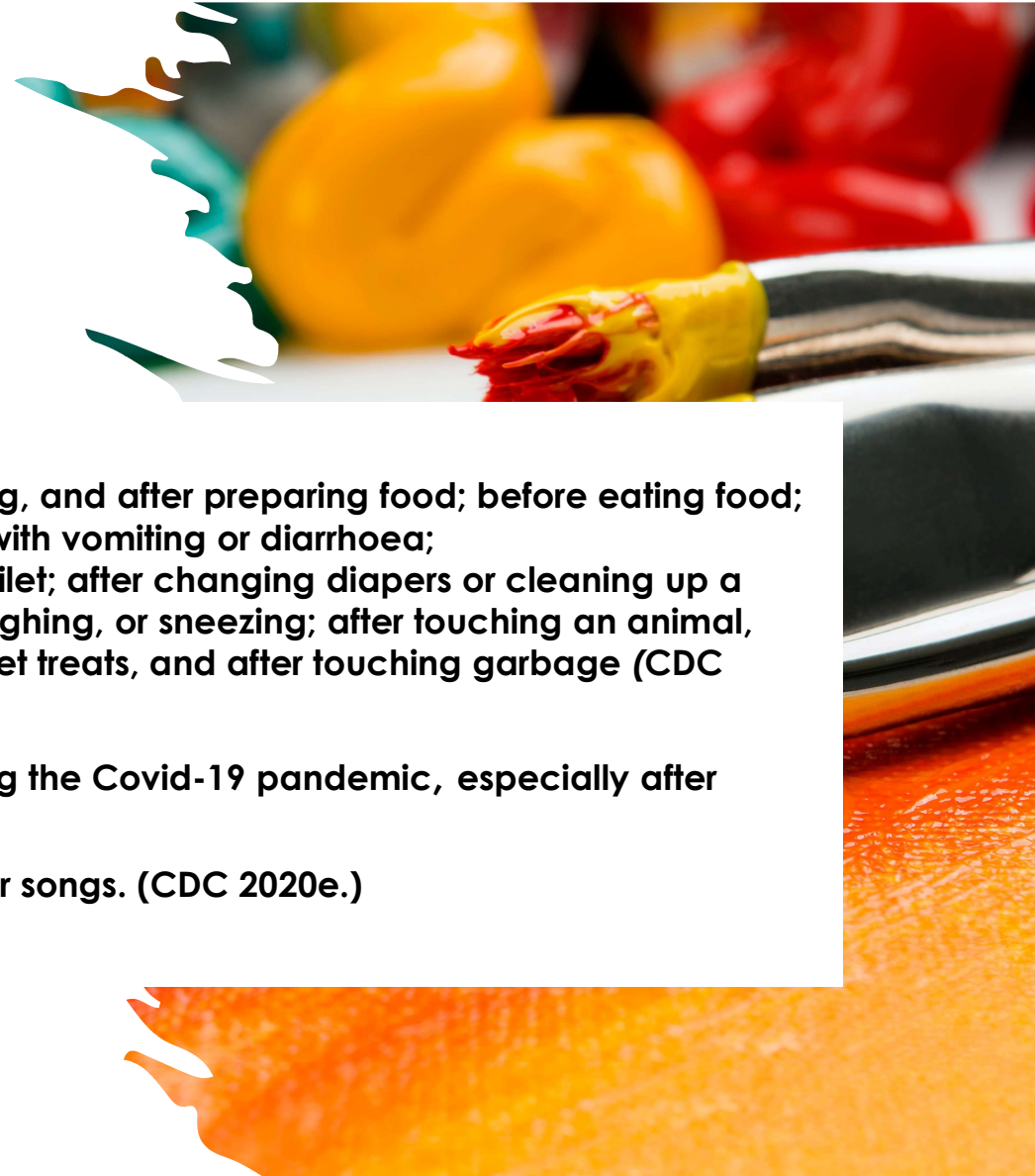
Handwashing in infection prevention



- Good handwashing strategies implemented in the right way may prevent disease and death including common diseases such as diarrhoea, pneumonia, common colds and flu (UNICEF & WHO 2020, 3)
- Proper hand hygiene can not only prevent one from being infected by antibiotic resistant pathogens but also reduce the amount of sickness that leads to overuse of unnecessary antibiotics. (CDC 2020b).
- Pathogens spread via hands, when touching one's eyes, nose and mouth if hands are unwashed, eating and preparing food with unwashed hands, touching contaminated objects or surfaces, or when blowing one's nose, coughing, or sneezing and then touching other people's hands or shared objects (CDC 2020a)
- Wetting hands, lathering soap, scrubbing, rinsing, and drying are the five steps of handwashing (CDC 2020a)
- The correct duration for handwashing is about 20 seconds, also measurable by singing the "Birthday song" twice (NHS 2019; CDC 2020c).
- Using soap lifts soil and microbes from the skin (e.g. Luby & al. 2005 cited in CDC 2020c).
- Rinsing hands helps removing the microbes with soap and lessen skin irritation from the soap. Drying them with a clean towel, or air drying them stops new microbes from attaching to the wet skin. (e.g. Todd & al. 2010 cited in CDC 2020c.)

Handwashing in infection prevention

- The correct times to wash one's hands are: Before, during, and after preparing food; before eating food; before and after caring for someone at home who is sick with vomiting or diarrhoea; before and after treating a cut or wound; after using the toilet; after changing diapers or cleaning up a child who has used the toilet; after blowing your nose, coughing, or sneezing; after touching an animal, animal feed, or animal waste; after handling pet food or pet treats, and after touching garbage (CDC 2019a)
- CDC (2020d) suggest more frequent handwashing during the Covid-19 pandemic, especially after touching surfaces
- Handwashing could also be made fun through games or songs. (CDC 2020e.)



Infection prevention in Tanzania

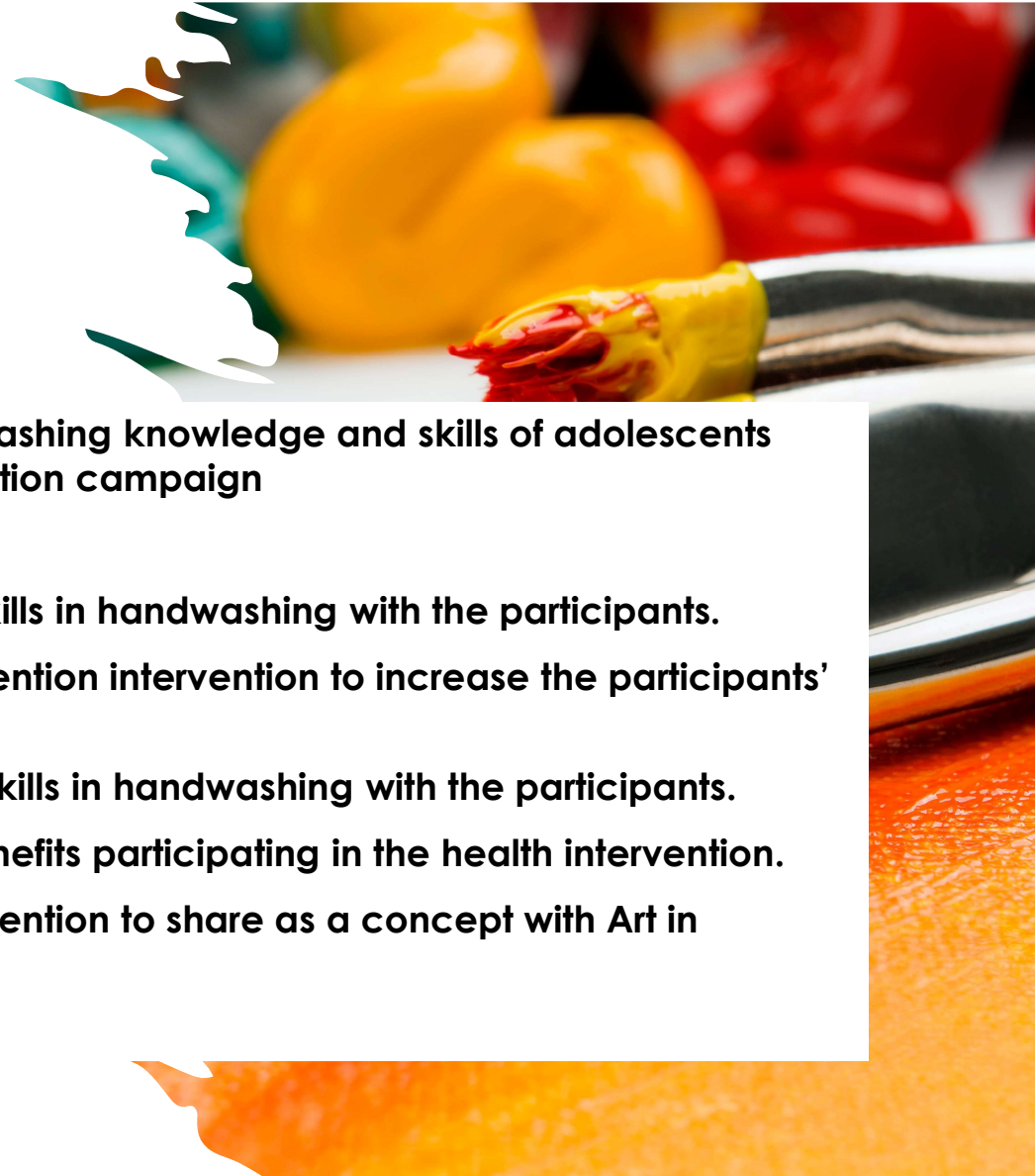
- In 2018, some of the leading causes of death for adolescent girls and boys in Tanzania were lower respiratory and diarrhoeal diseases (WHO 2018a)
- Health education is not taught in schools as a separate subject, instead it is included into other school subjects. (Kayombo 2020. Pers. com.)
- Tanzania Mainland Global School-based Health Survey Country report (GSHS) that the hygiene health behaviour between adolescents in Tanzania is ranked poorer than the global average of the 98 countries that participated in the research. (MoHCDEC 2017).
- 8.1% of adolescents never or rarely wash their hands before eating and 19.1% never or rarely wash their hands after using the toilet (MoHCDEC 2017).
- 47.6 % of Tanzanian children go to school without any access to running water (MoHCDEC 2017)

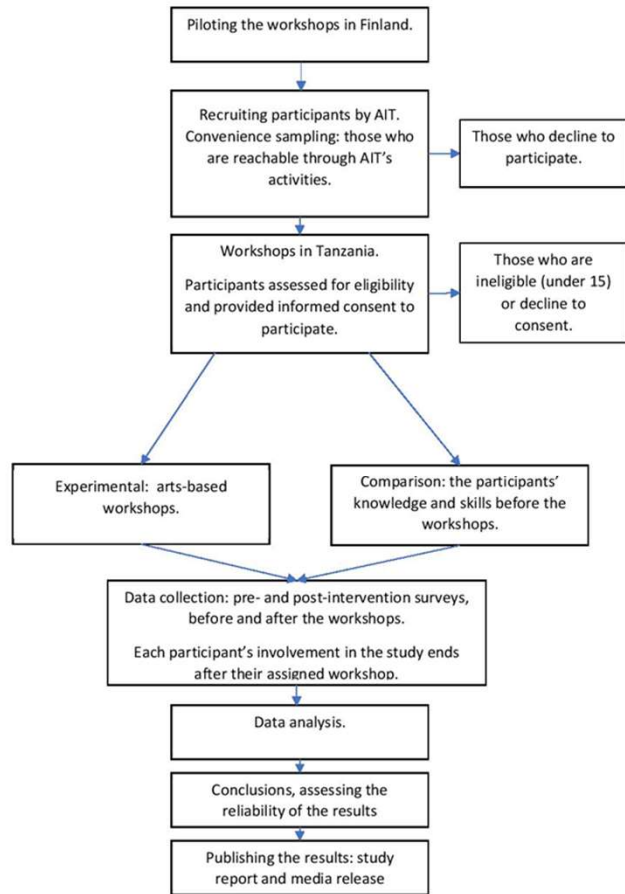


Study description

Aim and objectives of the study

- **The aim of the study was to increase the handwashing knowledge and skills of adolescents Tanzania with a visual arts-based infection prevention campaign**
- **The objectives were:**
 - 1) **To study the pre-intervention knowledge and skills in handwashing with the participants.**
 - 2) **To co-create a visual arts-based infection prevention intervention to increase the participants' knowledge and skills in handwashing.**
 - 3) **To study the post-intervention knowledge and skills in handwashing with the participants.**
 - 4) **To study the participants experiences of the benefits participating in the health intervention.**
 - 5) **To create a tested framework for a health intervention to share as a concept with Art in Tanzania.**





PICO(t)

Population	<ul style="list-style-type: none">• Tanzanian adolescents aged 15 to 17 years
Intervention	<ul style="list-style-type: none">• Visual arts-based infection prevention campaign focusing on handwashing skills and knowledge
Comparison	<ul style="list-style-type: none">• Measuring the participants' skills and knowledge in handwashing before and after intervention
Outcome of interest	<ul style="list-style-type: none">• Increase in the participants' skills and knowledge in handwashing• Create a framework for the partner organisation
Time	<ul style="list-style-type: none">• Comparing pre- and post-intervention data collected before and after workshops





Creating an arts in health intervention in
7 steps

(ADAPTED FROM FANCOURT, 2017)

Conceptualising and planning

Mapping the environment

Finding a project partner

PICO(t) model

Identifying the target group

Gaining concrete experience

Discovery interviews

Background search on handwashing in infection prevention and adolescents' health challenges in Tanzania; creating a literature table

Conducting reflective observation

Identifying the 10 key objects from background material

Naming the workshop framework

Deciding the study method and design

Undertaking abstract conceptualisation

Creating the framework

Creating the framework handbook

Creating the pre- and post-intervention surveys

Carrying out active experimentation

Piloting the workshop and surveys

Implementing and evaluating

Reviewing and acting

Training AIT staff

Carrying out the workshops in Tanzania

Data collection

Data analysis

Making changes to the framework based on the results of data analysis

Reconnecting

Handing the tested workshop framework to Art In Tanzania

Publishing the results on Global Window and Theseus

The ten key items extracted from background data

- **SKILLS (*how to wash your hands*):**

Soap, timing, drying, technique, running water

- **KNOWLEDGE (*why to wash your hands*):** Preventing illness, locating pathogens, routes of transmission, global infection prevention, accessibility

→ Identifying learning needs

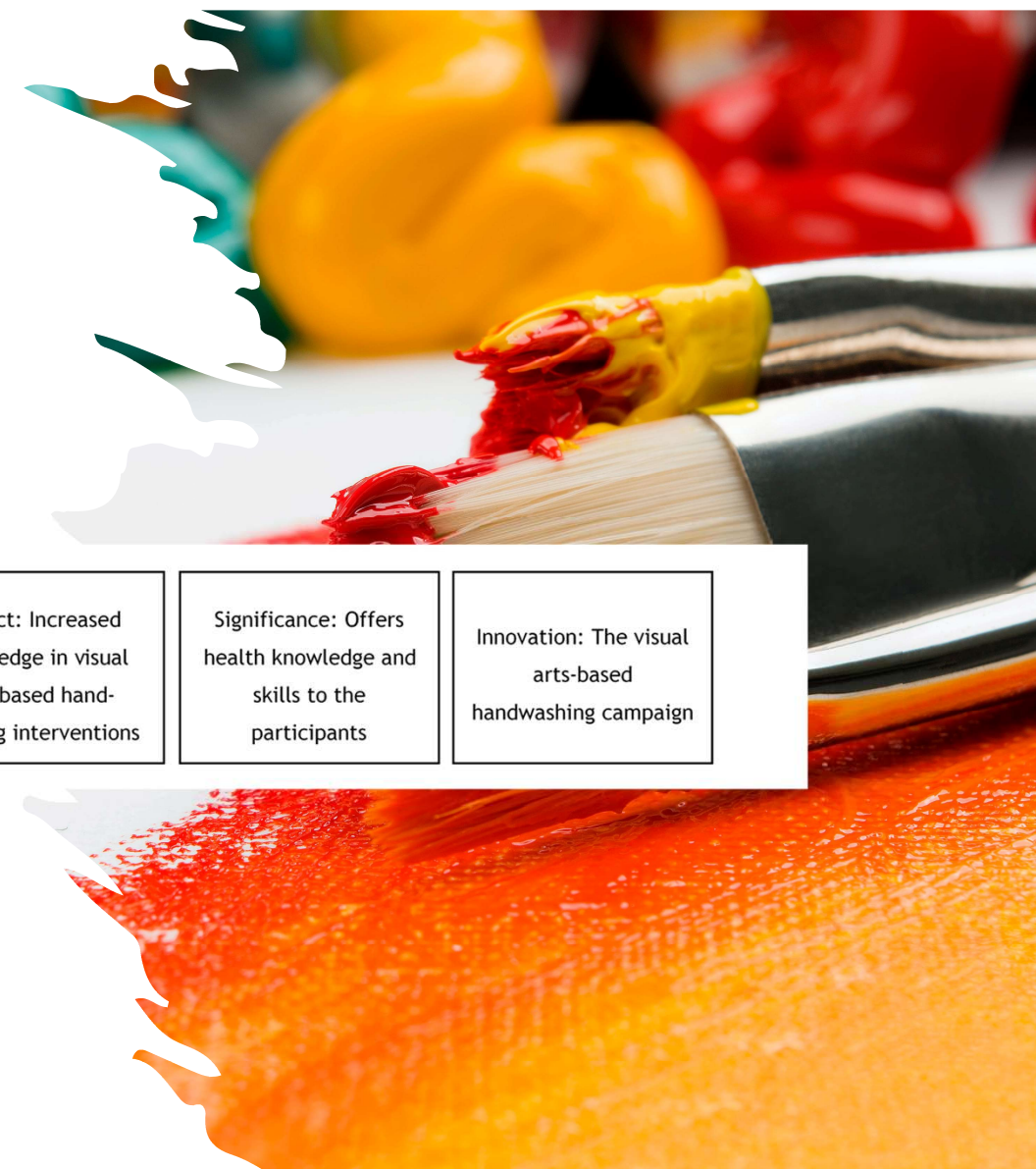
→ Transferrable knowledge



Ten key items:	Identifying learning needs:	Transferrable knowledge:
Skills		
1. Soap	Identifying the relevance of soap in handwashing manners.	Soap should be used every time hands are washed, to remove pathogens efficiently.
2. Timing	Identifying when washing your hands is necessary.	The correct handwashing times: Before, during, and after preparing food; before eating food; before and after caring for someone at home who is sick with vomiting or diarrhoea; before and after treating a cut or wound; after using the toilet; after changing diapers or cleaning up a child who has used the toilet; after blowing your nose, coughing, or sneezing; after touching an animal, animal feed, or animal waste; after handling pet food or pet treats, and after touching garbage
3. Drying	Identifying the importance of drying hands regarding infection prevention.	Hands should be dried completely dry with a clean towel after washing your hands, to prevent pathogens from attaching to the skin
4. Technique	Identifying the need to cover each part of your hands, while washing your hands. Identifying the correct order and duration of handwashing.	The correct order for handwashing is: add water, add soap, scrub, rinse, dry. Hands should be scrubbed together 20 seconds after adding soap to remove pathogens efficiently.
5. Running water	Identifying the importance of running water.	Running water is an important part of handwashing for removing pathogens and soap efficiently, also in the reduction of skin irritation from soap. It is also safer than stagnated water. Water does not have to be hot. Cool water may cause less skin irritation and is more environmentally friendly than warmer water
Knowledge		
6. Preventing illness	Identifying that handwashing prevents diarrheal disease and respiratory infection related illness and deaths.	Washing hands regularly prevents respiratory infections and diarrhoeal diseases, common cold, flu and the spread of anti-microbial resistant bacteria.
7. Locating pathogens	Identifying the locations and pathogens living on one's hands.	Most of the microbes on one's hands live under the fingernails. Normal human flora (germs) can be dangerous in wrong places.
8. Routes of transmission	Identifying the most common ways pathogens move from hands to people	Through hands to mouth, nose and ears, as well as surfaces.
9. Global Infection prevention	Identifying the effects of handwashing in a global health aspect.	Handwashing is one of the most effective preventative method regarding infection control, and during the Covid-19 pandemic handwashing should be even more regular. Prevents antibiotic resistant pathogens.
10. Accessibility	Identifying global issues with running water and lack of soap.	40% of the world's population live in areas where water and soap are inaccessible. Only 19% of adolescents in Tanzania wash their hands after using toilet.

Intervention research and quasi-experimental study designs

- Intervention research= experimental research
- Quasi-experimental study design: no control group
- Method: pre- and post-intervention surveys
- Impact, significance and innovation of the study:



Impact: Increased knowledge in visual arts-based hand-washing interventions	Significance: Offers health knowledge and skills to the participants	Innovation: The visual arts-based handwashing campaign
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Data collection

- A handwashing campaign in Tanzania by Art in Tanzania
- 6 workshops were run in March and April 2021 in Dar Es Salaam
- Data collected from 4 workshops
- Each participant filled in a survey with 14 questions before the workshops
- The same questions were answered after each workshop
- Additional 3 questions about self-reported outcomes were asked



Welcome to our Paint and Prevent handwashing workshop. This survey is not a test, and your knowledge will not be compared to the knowledge of the others'. If you have any questions, please do not hesitate to ask.

DO NOT WRITE YOUR NAME ON THIS PAPER.

After this survey, we will have some fun!

Age (optional): Gender (optional):

Please answer the following questions. Circle the answer that fits you the best.

- | | | | | | |
|--|------------|-------------------|-----------|--------------|-------|
| 1. If I have a place for washing my hands, I wash them before I eat. | Every time | Almost every time | Sometimes | Almost never | Never |
| 2. If I have soap, I use it when I wash my hands. | Every time | Almost every time | Sometimes | Almost never | Never |
| 3. If I have access to running water, I use it for washing my hands. | Every time | Almost every time | Sometimes | Almost never | Never |

Please answer the following questions. Circle what you think is the correct answer (True) or (False).

- | | | |
|---|------|-------|
| 4. Touching your face with dirty hands may spread germs to your nose, mouth or eyes. | True | False |
| 5. You should always use hot water for washing your hands. | True | False |
| 6. You should dry your hands with a clean towel after washing them. | True | False |
| 7. You should always rub your hands together at least 30 seconds when washing them. | True | False |
| 8. You should always wash your hands after changing a baby's diaper. | True | False |
| 9. Respiratory infections and diarrhoeal diseases cannot be prevented by proper handwashing. | True | False |
| 10. The correct order to wash your hands is: Add soap, add water, rinse, scrub, dry with a clean towel. | True | False |
| 11. You should always use soap for washing your hands. | True | False |
| 12. 40% of the world's population live in areas where water and soap are inaccessible. | True | False |
| 13. Using water in a water basin for washing your hands is just as good as using running water. | True | False |
| 14. During the Covid-19 pandemic, it is important to wash your hands even more frequently. | True | False |

Thank you for taking this survey. Now let's have some fun!

Thank you for participating in the Paint and Prevent handwashing workshop. This survey is not a test, and your knowledge will not be compared to the knowledge of the others'. If you have any questions, please do not hesitate to ask.

DO NOT WRITE YOUR NAME ON THIS PAPER.

Age (optional): Gender (optional):

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- | | | | | | |
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| 14. During the Covid-19 pandemic, it is important to wash your hands even more frequently. | True | False |

Please answer the following questions and give us feedback.

- | | | | | | |
|--|----------------|----------------|--------------------------|-------------------|-------------------|
| 15. My skills and knowledge in handwashing have improved today. | Strongly agree | Somewhat agree | Do not agree or disagree | Somewhat disagree | Strongly disagree |
| 16. I have learned new things about how handwashing can improve my health today. | Strongly agree | Somewhat agree | Do not agree or disagree | Somewhat disagree | Strongly disagree |
| 17. It was easier to learn about handwashing because we painted, too. | Strongly agree | Somewhat agree | Do not agree or disagree | Somewhat disagree | Strongly disagree |

Thank you!

Characteristics of the participants

- The valid sample, (N=37) included paired surveys from participants from 15 and above years old. 2 participants did not give their age. Nearly half were 15 years old.
- The age of participants was further classified as (1) 15 and (2) 16 or over, to create two equally sized groups to use in data analysis.
- The participants of this study had an opportunity to inform the authors on their gender and age. This information was used for descriptive data analysis. Overall, out of 37 participants there were slightly more male participants compared to female participants

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Data analysis

- Independent *t*-testing was used to compare differences between age and gender groups' pre- and post-survey answers
- Wilcoxon's signed ranks test was used for testing the significance of the results
- The data were transferred to sum variables: Self-reported skills a summation of means (Q1-3), skills and knowledge summations of sums (Q4-14), and self-reported outcomes summation of sums (Q15-17)
- Independent variables, gender and age, were also studied





Results

Self-reported skills

Question	Pre-intervention n=number of respondents Mean (M) Min - Max	Post-intervention n=number of respondents Mean (M) Min - Max
Q1: Self-reported skills If I have a place for washing my hands, I wash them before I eat	n=34 M = 1.62 (SD 0.82) Min = 1 – Max = 4	n=36 M = 1.31 (SD 0.79) Min = 1 Max = 5
Q2: Self-reported skills If I have soap, I use it when I wash my hands	n=34 M = 1.74 (SD 0.80) Min = 1 Max = 4	n=36 M = 1.61 (SD 0.80) Min = 1 Max =
Q3: If I have access to running water, I use it when washing my hands	n= 34 M = 1.68 (SD 0.84) Min = 1 Max = 4	n= 36 M = 1.50 (0.81) Min = 1 Max = 4

Self-reported skills

- According to the pre-self-reported skills outcomes participants had some understanding on handwashing even though they answered were better after the workshop in the post-intervention-survey.
- Two participants did not answer the pre-self-reported skills survey questions and one participant left the post survey unanswered for an unknown reason.
- The participants' reported their pre-intervention handwashing skills good (M 1.68 SD 0.62) They reported their skills having improved post-intervention (M 1.47, SD 0.65) post- intervention. By Wilcoxon Signed Ranks Test, increase was not statistically significant, at the $p = 0.83$ and the $Z = -1.73$.

Skills

- An independent samples *t*-test showed no statistically significant differences between genders or age groups in the results of pre-and post-intervention skills questions.
- On average the respondents reported their skills better pre-intervention, $M=3.86$ ($SD=1.30$), than post-intervention, $M=4.41$ ($SD=1.07$).
- The Wilcoxon signed ranks test showed that most of the participants ($n=17$) ranked better in their post-intervention answers. The difference was statistically significant ($p=0.034$, $Z=-2.214$).

Knowledge

- The Wilcoxon signed ranks test showed no statistically significant difference in pre- and post-intervention-handwashing knowledge ($p= 0.149$, $Z= -1.442$). Ten participants improved their handwashing knowledge.
- Male participants had less correct knowledge answers post-intervention. Female participants' results improved after the intervention.
- The post-intervention knowledge of 15-years-old was slightly worse than pre-intervention. For 16-years older or above, there was an improvement in the results.

Skills and Knowledge

Mean value for post-intervention skills and knowledge – Mean value for pre-intervention skills and knowledge	Ranks	N	Mean of ranks
	Negative Ranks (Post-intervention skills and knowledge < Pre-intervention skills and knowledge)	7	17.36
	Positive Ranks (Post-intervention skills and knowledge > Pre-intervention skills and knowledge)	23	14.93
	Ties (Post-intervention skills and knowledge = Pre-intervention skills and knowledge)	7	
	Total	37	
Test Statistics			
Mean value for post-intervention skills and knowledge – Mean value for pre-intervention skills and knowledge	Z	Asymp. Sig. (2-tailed)	
	-2.330 (based on negative ranks)	0.020	

Skills and Knowledge

- A total of 23 participants got more correct answers in all the True or False questions post-intervention.
- For 7 participants, the results got worse, and for 7 participants, the amount of correct answers stayed the same.
- There was a significant difference in the number of correct answers (p-value = 0.02 Z= -2.330).

Self-reported outcomes

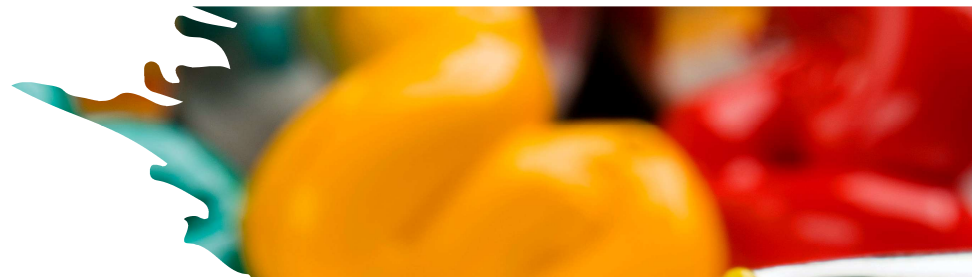
Independent variable (gender)	Mean summation self-reported outcomes	N	Std. deviation
(1) Male	2.95	21	0.22
(2) Female	3.64	14	0.93

	F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. Error difference
Self-reported outcomes gender	25.90	.000	-3.30	33	0.02	-0.69	0.21

Self-reported outcomes

- Participants' self-reported experiences in the outcomes of the intervention got a very good response
- The majority strongly agreed or agreed (M 1.03, SD 0.17) that their skills and knowledge in handwashing had improved during the workshop, and that they had learned new things about how handwashing can improve their health (M 1.11, SD 0.17).
- The participants also reported it easier to learn about handwashing because of the painting (M 1, SD 0.32). All in all, the mean sum for the self-reported outcomes was 3.22. The most typical sum for overall self-reported outcomes was 3. One responded only gave 2 points, which is likely due to not answering one question.

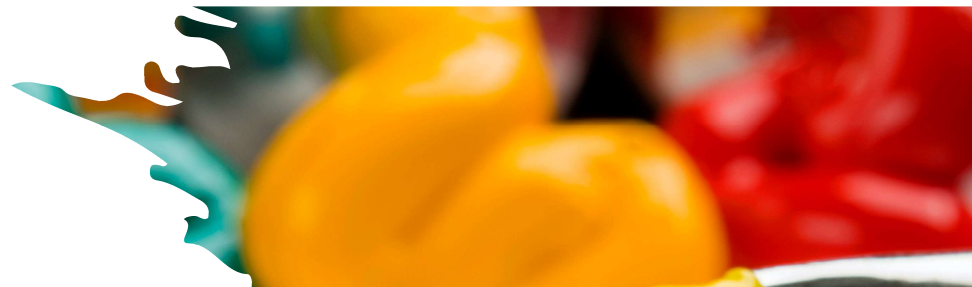
Conclusions and reflection



- The aims and objectives of this study were met.
- The intervention was successfully carried out in March and April 2021, and based on the data analysis, it did increase its participants' skills and knowledge in handwashing.
- The framework, which the intervention was based on, was created before the intervention, and tested through piloting and collecting feedback from the staff of Art in Tanzania.
- As most participants ranked higher in the post-intervention True or False questions, the intervention likely had a positive impact on them, and increased their skills in handwashing.
- The hypothesis of the study, that the participants' skills and knowledge in handwashing would increase post-intervention, was proven true.
- The results were promising but conducting such a small study may not show the true impact of the type of intervention used.
- The long-term results will also remain hidden unless a follow-up study is carried out.
- The study should perhaps be carried out several times or study the same groups of participants again to see the long-term effects.



Conclusions and reflection



A larger and more age-appropriate pilot group, with a similar cultural background could have been more beneficial for this study.

- The tools such as the ten key items could be adjustable for other health intervention themes or topics. The authors also acknowledged that e.g., that some health information, such as the Covid-19 information might need to be dated in the future.
- Collaboration was experienced to be sufficient and easy, excluding external factors such as Covid-19 and the sudden death of the Tanzanian president.
- A handbook including the workshop framework was handed to the staff of Art in Tanzania. The framework based on Fancourt's 7 step model was tested to be clear and easy to perform from. The framework was tested to be useful for future student and volunteer programs.
- Authors would like to note that the Likert-scaling of this study was back to front with a decreasing number as the correct answer.
- Open ended questions could have been beneficial to gain more in-depth knowledge on the participants experiences.

As future recommendation authors suggest:

- Testing and using the intervention with different methods of art.
- Testing the intervention outcomes with qualitative tools.
- Piloting the intervention with a bigger cohort group.
- Testing and using the intervention between different age groups and younger participants.

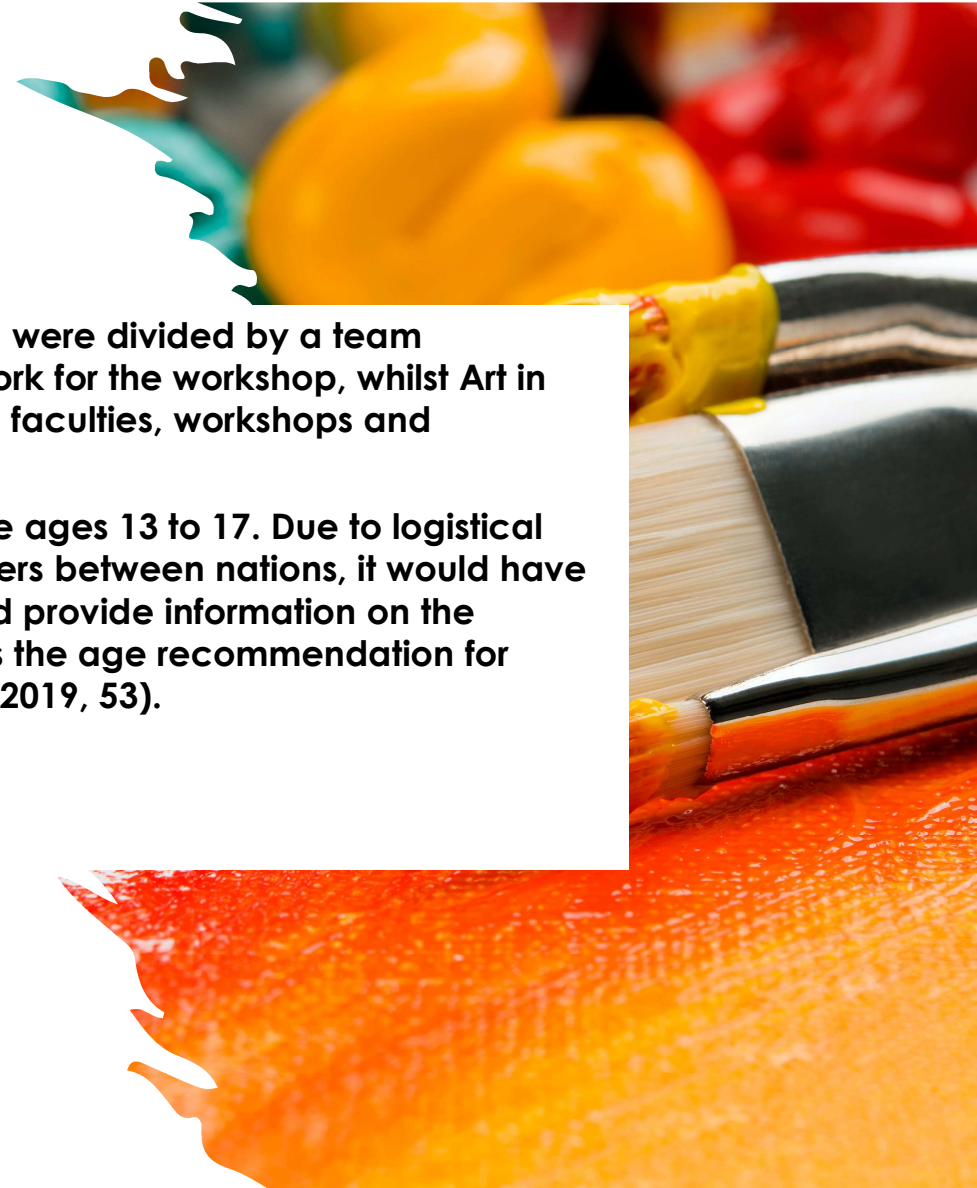
Ethics

- This study was reviewed by the TENK committee, concluding that the study does not need an ethical permission from Finland, since there will be no personal data register. Although authors were advised to contact Tanzania to reassure their national practicalities in such studies (Gröhn 2020. Pers. Com).
- Authors contacted the Tanzanian embassy, which then advised Art in Tanzania to visit COSTECH in person to reassure a permission for this interventional study (Willibrod 2020. Pers. Com).
- Art in Tanzania, as a Tanzania based NGO, had government permission to carry out the intervention (Korhonen 2020a. Pers. Com.)



Ethics

- **Responsibilities between the authors and Art in Tanzania were divided by a team agreement. Authors taking responsibility on the framework for the workshop, whilst Art in Tanzania took care of recruiting participants, organizing faculties, workshops and reassuring permits.**
- **The authors aimed for a broader age group between the ages 13 to 17. Due to logistical reasons working from Finland, as well as language barriers between nations, it would have been hard to supervise correct parental permissions and provide information on the research from adolescents under the age of 15, which is the age recommendation for parental consent by the TENK ethical guide lining (TENK 2019, 53).**



Ethics

- The authors did not participate in the data collection in Tanzania, and had no evidence if participants had the possibility to decline from the research or if the participants really were between the agreed age range.
- There is a small likelihood of a reliability participant error that answers were given to participants while filling the before and after surveys or participants not fully understanding all the questions in the pre- and post-survey.
- However, the authors had a trustworthy relationship and good communication with Art in Tanzania in the belief that workshop holders worked ethically and aligned on what had been agreed upon.
- Participants surveys were destroyed by an Art in Tanzania employee after the workshops by burning the surveys.

Paint and Prevent

- [Paint and Prevent – a guide to a visual arts-based handwashing workshop](#)



References

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