2022

Yoga Program

Evaluation report

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1. Introduction

The NSW Service for the Treatment and Rehabilitation of Torture and Trauma Survivors (STARTTS) is a not-for-profit Affiliated Health Organisation which has been providing services to survivors of torture and refugee trauma in NSW for over 30 years. It provides culturally appropriate services to help people recover from torture and refugee trauma, foster their empowerment and self-determination, and rebuild their lives in Australia. STARTTS also fosters a positive, effective and culturally sensitive recovery environment through the delivery of training to services that work with refugee populations, advocacy and policy work.

Over the last 7 years, STARTTS has delivered yoga classes to small groups from different refugee communities to assist them enhancing their mental and physical health, and their general wellbeing during resettlement process in Australia. These yoga classes have been delivered by the Clinical, Direct Services and the Community Services teams within STARTTS with positive outcomes for clients, including young and adult people.

In 2020 the COVID-19 pandemic impacted many refugee communities across NSW, especially in the "areas of concern'. The results were an increase in existing pressure, hardship and isolation, adding to existing resettlement challenges and causing further negative impact on clients' physical and mental health. As a response, in 2021, STARTTS' Community Services Team was able to seek extra funding and expand the yoga classes into different refugee communities, increasing the reach of the benefits and consolidating the Yoga program.

This evaluation report aims to explore the benefits of yoga classes delivered to different refugee communities. The report uses mixed methods and an exploratory approach to identify possible outcomes. This report is comprised of a short literature review, the program description, evaluation findings, and the general conclusion.

2. Literature review

Yoga as a complementary therapy to support the physical and the mental health and the general wellbeing of Refugees communities

Refugees are at significant risk of psychological morbidity because of their experiences of forced migration, recurring traumatic event and resettlement in unfamiliar environments (Hollifield et al., 2002). Prevalence estimates indicate that approximately one in twenty adult refugees in western countries have major depression, and one in twenty-five experience generalised anxiety disorder (Fazel et al., 2005). Post-traumatic stress disorder (PTSD) is the most pervasive mental health problem in this population, affecting one in ten adult refugees; a ten-fold higher prevalence rate than age-matched Americans from a non-refugee background (Fazel et al., 2005).

Mind-body interventions

Clinicians and researchers increasingly recognise the importance of both the brain and body in the development, maintenance, and treatment of trauma-related mental health problems (van der Kolk et al., 2014). Robust research has demonstrated the physiological impact of trauma, driven by dysregulation of the autonomic nervous system and immune system, which leads to experiences of hyper- or hypo-arousal out of context and feelings of being unsafe in one's own body (Craig, 2003; de Kloet et al., 2006; Herman, 2015; Rhodes et al., 2016; Yehuda, 2006). Reflecting on these findings, guided mind-body therapies have been identified as an important treatment component for traumatised individuals due to their focus on bodily experiences and improving self-regulation (Evans et al., 2009; Ross & Thomas, 2010; Salmon et al., 2009; Van Der Kolk, 1994; van der Kolk et al., 2014). For example, yoga is being increasingly used as a mind- body complementary or alternative therapy for the treatment of major psychiatric disorders such as PTSD (Metcalf et al, 2016; Cabral et al, 2011; Reinhardt et al 2018). Accordingly, complex trauma specialists have increasingly shown interest in yoga as a treatment component to build skills in self-regulation, create priorities, and address the disconnection between mind and body (Courtois, 2004; van der Kolk, 2006).

Yoga and its health benefits

Yoga, which stems from the tenets of Hinduism, Buddhism and Jainism, is one of the oldest practices in the world used to reduce stress and disease for thousands of years (Feuerstein, 2012; Jeter et al., 2015). Yoga focuses on unifying mind and body, integrating physical postures and movements, breath exercises, and mindful attention to the present moment (Cramer et al., 2013; Rhodes, 2015) and may provide a number of health benefits.

Practitioners have reported numerous health benefits of yoga, including improvements in weight, sleep, diet, and energy, as well as increased socialisation and ability to manage social stressors (Braun et al., 2012; Ross et al., 2014; Ross et al., 2013). Yoga's acute effects on cognition are also well-established, including increased attention, processing speed, and executive functions, with early evidence suggests that yoga may protect against age-related and neurodegenerative declines (Gothe & McAuley, 2015). Associations have also been observed between yoga and numerous contributors to psychological health, including stress levels, quality of life, emotional wellbeing, positive affect, self-esteem, compassion, spirituality and mindfulness (Braun et al., 2012; Büssing et al., 2012; Chong et al., 2011; Dale et al., 2011; Evans et al., 2011; Granath et al., 2006; Impett et al., 2006; Maddux et al., 2018; Moadel et al., 2007; Sherman et al., 2013).

On a clinical level, substantial empirical evidence has established yoga as an effective ancillary treatment component when used in combination with cognitive-based therapies for a range of conditions, including depression and anxiety (Cramer et al., 2013; Hofmann et al., 2016; Nguyen-Feng et al., 2019; Uebelacker et al., 2017). Recently, a burgeoning body of literature has investigated the relationship between yoga and improvements in PTSD and other trauma-related mental health symptoms (Gallegos et al., 2017; Macy et al., 2018; Nguyen-Feng et al., 2019; Taylor et al., 2020). Yoga has been found to be a safe, feasible, and effective intervention for alleviating trauma-related symptomatology in clinical populations with various trauma histories, including combat veterans (Bremner et al., 2017; Cushing et al., 2018; Staples et al., 2013; Stoller et al., 2012), hurricane and tsunami survivors (Gerbarg & Brown, 2005; Telles et al., 2007), and women exposed to prolonged interpersonal traumas (Rhodes et al., 2016; van der Kolk et al., 2014). Yoga has also been found to be beneficial for physical health problems frequently comorbid with trauma-related disorders, including chronic pain (Evans et al., 2008), gastrointestinal issues (Kuttner et al., 2006), sleep disturbances (Khalsa, 2004; Staples et al., 2013), and maladaptive physiological responses to stress (Pascoe et al., 2017; Ross & Thomas, 2010).

Limited research has empirically investigated the benefits of yoga for refugees or asylum seekers, with the exception of a two-month pilot study completed by the Vasudhara Foundation and STARTTS in Sydney in 2017. Findings from this study demonstrated the feasibility of yoga for this population, with high satisfaction levels and a range of physical, psychological and social benefits observed (Begg et al., 2017). Furthermore, qualitative interviews with Buhatenese refugee groups in the U.S. showed how these groups utilised yoga to alleviate chronic somatic symptoms, particularly when mainstream medical treatments failed (Krause et al., 2021). The value of movement-based therapies for refugee groups has also previously been established as valuable in helping refugee and asylum seekers with acculturation, identity restoration, and coping with the effects of traumatic experiences (Callaghan, 1998; Gray, 2015; Harris, 2007; Koch & Weidinger-von der Recke, 2009; Rahapsari & Hill, 2019).

Mechanism of Change in yoga Interventions

While the specific mechanisms underlying yoga's health-promoting effects for traumatized individuals are yet to be elucidated, several hypotheses have been proposed. Firstly, positive clinical outcomes may be a result of the improvements in body awareness and tolerance of physical sensations of distress promoted by yoga (van der Kolk et al., 2014). Secondly, yoga has also been found to reduce hyperarousal via nervous system regulation, reduce the stress hormone cortisol, and lower heart rate variability (Ross & Thomas, 2010). These physiological effects of yoga on the stress response symptom may help alleviate symptoms (Rhodes et al., 2016). Thirdly, improvements in cognitive traits such as psychological flexibility and reductions in expressive suppression following yoga may be also contribute to its observed efficacy as an intervention (Dick et al., 2014; Sharma & Haider, 2013).

Regardless of the exact mechanisms of change, yoga is clearly a valuable tool for facilitating healing amongst survivors of trauma and promoting health and wellbeing. Qualitative interviews have shown that skills learned "on the mat" have helped individuals cope with new stressors and trauma triggers in their daily life, build a sense of peace within themselves, and restore a vital sense of control over their lives (Nolan, 2016; Rhodes et al., 2016). The benefits of yoga may be particularly pertinent in the context of the global COVID-19 pandemic and associated lockdowns, which has led to heightened levels of psychological distress, anxiety, fear, and loneliness (Pfefferbaum & North, 2020; Ransing et al., 2020; Smith et al., 2020; Tandon, 2020). Yoga has been recommended as a home-based activity to

mitigate these negative consequences and improve overall mental well-being during the pandemic (Puyat et al., 2020), and has also been found to be an effective and feasible support intervention in natural disaster settings (Descilo et al., 2010; Durrani et al., 2019; Telles et al., 2007; Telles et al., 2010).

3. Program description

The Yoga program consists of weekly yoga classes delivered to groups from diverse refugee communities. It aims to assist them enhancing their mental and physical health and general wellbeing during their settlement process in Australia. The program includes posture (asanas), breathing (pranayama) and meditation exercises which participants can incorporate in their everyday life to support their holistic wellbeing.

STARTTS yoga classes started in 2017. Since then, the organisation has delivered classes to a small number of groups from refugee communities due to limited funding. Currently, the program comprises 10 groups from 8 refugee communities. Some of the groups' participants belong to different ethnic communities but all share same language (See Table 1).

Participants come from the following NSW LGAs; Blacktown, Fairfield, Liverpool, C'Land, Penrith, Bayside, Canterbury Bankstown, City of Sydney Campbelltown, Ryde, North Sydney, Northen Beaches, Parramatta, New Castle, Wagga Wagga, Shoalhaven and Lithgow. Some are existing members of other STARTTS groups and others are new participants who were referred by other organisations or heard about the classes from other members.

Table 1: *Yoga groups by February 2022*

Group name	Gender of Participants	Number of participants registered
Uyghur Women's Yoga group 1	Female	8
Uyghur Women's yoga group 2	Female	8
Uyghur Men's yoga group	Male	8
Tibetan yoga group	Mixed	20
Burmese women's yoga group (different ethnic communities)	Female	20
Afghan women's yoga group (includes different ethnic communities)	Female	12
Middle East women's yoga group (Arabic speaking)	Female	28
Armenian women's yoga group	Female	6
African women's yoga group	Female	6
Ahmadiyya Women's yoga group (Urdu speaking)	Female	19
Total participants		135

Classes run for 1 to 1.5 hours and are conducted by qualified teachers with the support of staff from STARTTS and sometime other organisations. Instructors speak the community language of the groups. The classes are usually delivered face to face, but with COVID-19 restrictions they are currently delivered online. Sessions are tailored to the specific need and capabilities of group members. For example, participants are able to choose between sitting, standing or lying down during sessions.

Classes usually start with breathing and mindfulness exercises, and continue with trauma sensitive, gentle Subtle or Hatta yoga techniques and finish with Yoga Nidra, induced by soft, guided meditation and relaxation techniques. They intend to support physical movements with a range of smooth motions and strengthening it with different postures. The yoga classes also aims to be restorative by encouraging participants to relax physically, mentally and emotionally while practicing it. Additionally, the Yoga program incorporates different paths or types of yoga which are adapted to the needs of participants and are commonly known as "Hatha Yoga (physical development), Gnyana Yoga (developing the intellect), Karma Yoga (practical action)…" (Patel, 1993, as cited in Salmon, 2009, p.59) and Raja Yoga (Araujo et al. 2021) ("mind focus and … control through meditation, extension and quiescence") (Doulatabad et al., 2013, p.50).

Program objectives

- Improve physical and mental well-being by focusing on the breath and promoting body awareness and relaxation
- Reduce stress/promote relaxation through application of yoga and mindfulness/meditation techniques.
- Reduce social isolation by promoting social connection through the yoga groups
- Increase participants' knowledge/understanding of Subtle and Hatha Yoga and mindfulness/ meditation techniques.

4. Evaluation methodology

This evaluation comprises yoga classes delivered to eight yoga groups in 19 weeks between October 2021 and February 2022. In addition, this report includes qualitative outcomes from a focus group conducted after 30 weeks yoga classes delivered to one of those eight groups. This evaluation uses mixed methods to explore the outcomes of the Yoga program and its possible health benefits on refugee communities. It utilises focus groups and semi-structured interview techniques as well as the World Health Organisation Well-Being Index (WHO-5) tool:

- Focus groups were conducted to 8 yoga groups from diverse refugee communities with the assistance of an interpreter. Seven focus groups were conducted after 19 weeks of yoga classes and a focus groups was conducted after 30 weeks yoga classes. Participants were asked about what they have learnt from the yoga classes, their increase of social connection and network as a result of attending the classes and the impact of the classes on their physical and mental health and wellbeing. Participants were also asked how the classes supported them during the pandemic and how the course cold be improved. Data was thematic analysed and results are presented in findings.
- The World Health Organisation Well-Being Index- WHO-5. Pre and post forms were administered to 82 people from different yoga groups on day 1 and after 19 week of receiving yoga classes to determine changes in respondents' wellbeing as a result of participating in the

Yoga program. TheWHOY-5 (World Health Organisation, 1998) is a short self-reported measure indicating current mental wellbeing. Respondents rate five symptoms on a six-point scale ranging from 0-5 with 5 being the best score. The questionnaire has been used to assess the quality of life in a number of psychiatric diagnosis groups, and has well-supported validity and sensitivity to change (Topp, Østergaard, Søndergaard, & Bech, 2015). The scale has also been used to assess overall treatment effects in the field of psychiatry and in trials with trauma-affected refugees (Buhmann, Mortensen, Nordentoft, Ryberg, & Ekstrom, 2015). The WHO-5 has been found to have adequate validity in screening for depression and in measuring outcomes in clinical trials.

- A semi-structured Interview was conducted to a STARTTS staff and yoga instructor to gather more information regarding the program background and description
- **Document review** were conducted to previous yoga reports and academic journals to develop a short literature review and gather some quantitative data for the program description and level of participation.

5. Findings

5.1. Number of sessions and participants

A total of 99 sessions were delivered in 19 weeks between October 2021 and February 2022 among 10 yoga groups. Those classes were attended by a weekly average of 77 participants. Groups comprised mainly women, except for one men yoga group and a mixed yoga group. Participants also belong to different refugee communities across NSW (See table 1).

5.2. World Health Organisation Well-Being Index –WHO-5

The analysis of the WHO-5 Pre and Post data (n= 82) indicates a 18 % difference in percentage score which represent an overall increase of 29% between pre and post scores of subjective wellbeing that are measured on the WHO-5 index. Each item of the WHO-5 index was added to consolidate a meaningful score for baseline score mean (61) and the post score mean (79) (See figure 1).

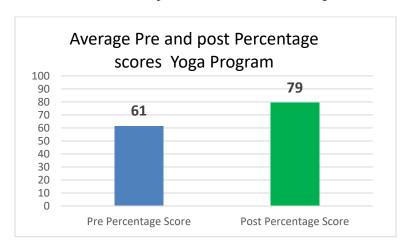


Figure 1. Pre and post percentage scores

When analysing individual scores, 15% of participants scored \leq 50 in the baseline of WHO-5 index. However, between the 10 and 19 yoga sessions, only 2% of participants scored below \leq 50 and a total of 98% of participants scored \geq 50 which indicated an overall increase of their level of subjective wellbeing.

Comparing individual percentage scores between pre and post WHO-5, 82% of participants scored more than 10 point difference which suggest a clinically significant change. Although, 4% of those participants, who belong to same refugee community, scored negative 10 point difference, only one score less than the cut off ≤50 which suggest the need for further screen for Depression and intervention. These low scores may be explained by external factors that affected directly this particular community associated with ongoing overseas conflict which has ongoing impact on this community wellbeing. According to STARTTS guidelines for WHO-5¹, the administration of a Mayor Depression (ICD-10) inventory is recommended for those participants who scored below 50 (2%).

5.3. Findings from focus groups

Data from 8 focus groups was thematically analysed and the findings are presented below:

• Learned yoga techniques and breathing exercises

Participants reported that they learned breathing and meditation techniques as well as a variety of yoga postures to support their general wellbeing. They described how different yoga and breathing exercises increased their energy, physical health and helped them to relax and feel peaceful:

"I learnt so much techniques of berthing and different type of postures." **Ahmadiyya women's yoga Group (Urdu speaking)**

"I learnt breathing, I really love this. Breathing in and out makes me fresh and love the breathing section and I know the breathing is very important and I really love and enjoyed it." Burmese women's yoga group (different ethnic communities)

I learnt the importance of breathing because I probably do not take any mindful breath. I had a car accident and after the accident I am going to physiotherapy and my physio also told me you need to take deep breaths and that way you can get more energy and refresh and get better, heal better. Before I did not know of the importance of the breathing so in this class I learnt the importance of breathing and I feel very refresh when I do that. Uyghur yoga men's group

"She enjoyed the yoga very much. She learnt how to do yoga exercises and breathing technique and it helped her to relax mentally and physically" **Middle East women's yoga group (Arabic speaking)**

"I really enjoyed the breathing because I learnt how to breathe and how to make myself peaceful..." Uyghur yoga women's group 1

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¹ This STARTTS document is based on the FASSTT National Minimum Data Set; Stage Four - Outcomes data - July 2020

"Some ladies have pelvic floor mascle problems, some have back problems, knee problems and constipation and all of that. So the instructor taught us which posture is good for that problems." Ahmadiyya women's yoga Group (Urdu speaking)

I practice yoga every day and I learnt how to do the meditation and how to do the yoga by myself. My body and mind need this kind of things and I am happy to join it. Afghan women's yoga group (includes different ethnic communities)

"My favourite part is just what I said earlier, the eyeball exercise, literally your eyes are the world. I really love that exercise, I do it every time." **Tibetan Yoga Group**

"In Tibetan Culture, you know, when you feel a little bit tired or unwell, we are not used to do exercise. If you do certain things and want to improve the health, we are used to do more like lay down for a bit, relax and you will feel better. But after doing yoga, I felt like... wow, this is something new for me, doing certain movements like shoulder exercise, moving your hands around or, if you have back pain, the yoga teacher said such a movement is beneficial for back pain or joint pain, muscle pain, all these things. I learned from yoga, and I truly appreciate that." Tibetan yoga group

Improved physical and mental well-being

Participants of the focus groups reported improved physical and mental well-being as a result of attending the yoga classes:

a. Feeling calmer, relaxed and fresher

Some respondents described how yoga helped them to feel calmer, more relaxed and fresh. Through breathing, meditation and yoga postures, respondents said classes supported their mind and body and helped them to respond better to ongoing physical and mental health issues.

"Yoga is great opportunity to relax while keeping your mind aligned with the mind. Body and mind feel light and relax." **Ahmadiyya women's yoga Group (Urdu speaking)**

"The best thing, the body and mind feel relaxed. Kind of decluttering the mind. I would say detoxification of the body and mind." **Ahmadiyya women's yoga Group (Urdu speaking)**

"It is very useful for me. Before I walked but now I have some problem with my legs and I couldn't walk but yoga, especially the breathing is very useful for me and makes me calm and relax. I love it!" **Afghan women's yoga group (includes different ethnic communities)**

"I had some cramp in my muscle and it was very tight and after yoga I became relax and makes me happy, relax and calm. I was happy to do work at home. It was also useful for my mind." Afghan women's yoga group (includes different ethnic communities)

"Stretching my body is very useful. I also have 12 year old daughter and sometimes she gets very stressed so I do yoga with her to help her relax" **Middle East women's yoga group** (**Arabic speaking**)

"It reduced the stress and makes you do something for your own health" **Middle East** women's yoga group (Arabic speaking)

"I love a healthy lifestyle and doing exercise, but after doing yoga I feel like in a next level. You don't really have to go anywhere, just by engaging like this. (...) You literally can do a lot of things. This really benefited me and sometimes you have the anxious, anxiety feelings or things like that and it really relaxes my mind and body together. It really benefited me as well." Tibetan Yoga group

Some participants reported that in addition to the COVID-19 pandemic, past traumas and conflict overseas had greatly impacted their mental health and well-being and the yoga classes was a valuable opportunity to reduce stress levels and helped them to feel more relaxed and at ease.

During pandemic, even before pandemic we are still going through a lot like the genocide, which is what is happening to our community. It was already very hard but with pandemic it was even harder so through yoga class, it really helped me physically and mentally to come down and have at least some kind of peace and comfort. **Uyghur women's yoga Group 1**

It was so useful for me especially for my mental health, the situation in Afghanistan really hearts everyone and it is a very bad situation but yoga is the only thing that I enjoy and relax me. Afghan women's yoga group (includes different ethnic communities)

when I was so upset and cried too much because the situation in Afghanistan is worse and the only thing that help me was yoga because after yoga I feel a bit relax, my mind comes down and I feel relax. I became very relax and calm. Afghan women's yoga group (includes different ethnic communities)

Another point is because we are going through a lot, the whole Nation, this class is very helpful for our psychological health. **Uyghur women's yoga group 2**

"I was also tortured back in Chinese presence, I was made to sit in the back area for a long time and due to that I has mental issues, psychological issues, nightmares and staff like that, but by doing yoga, especially the relaxation, you feel when your teacher asks you to 'close your eyes and then release everything, make your body and mind relax'. That really benefited me. These days people can just do that. Whenever I had time, I feel much more relaxed mentally and physically and I really appreciate that' Tibetan Yoga group

b. Increased concentration and better sleep

Some participants reported that participation in the yoga classes improved their quality of sleep, as well as an increase in concentration, focus, and mood.

"I love it, I am doing everyday even in bed before I wake up, before I sleep. I can concentrate and focus more than before." Afghan women's yoga group (includes different ethnic communities)

what I learnt from the yoga class is how to became peaceful mind wise because after each session I became very peaceful, my mind became very peaceful and my body get very light and very comfortable and I can sleep. I usually take a nap after each session and when I wake up, I wake up very refresh. Uyghur men's yoga group

I came to the class because I have anxiety, problem sleeping and other mental health issues and hoped this class would help me to get better and it did. Now I sleep better and I feel less anxious or nervous. I really feel that the class help me a lot and if there is anything to improve or anything to say is to continue with the classes without break because it helped me. I wish this class keep going and we continue the class. Uyghur men's yoga group

"I attended all the sessions. Yoga reduced stress for me and gives me more mental and physical energy and makes me relaxed and sleep better." Middle East women's yoga group (Arabic speaking)

"I learnt is how to relax myself, how to concentrate and at the same time, especially for the joints areas..." **Burmese women's yoga group** (different ethnic communities)

In addition to the improvement of focus and concentration, some participants reported that the yoga class helped increase their self-awareness, and also created opportunities for self-empowerment through identification of problems and limitations.

I learnt from this class is to filter the outside world, all the noises and came back to my body and come back to myself and just to focus on myself for a short period of time and can be with myself and I can be myself. That is what I learnt to really filter the outside world noise and became very peaceful and comfortable with myself. **Uyghur women's yoga group 1**

So in this class I finally came to know that yoga has a kind of function that heals you and it is beneficial for you psychologically as well as physically. I have been experiencing chronic pain in my body and I am very active, I play many types of sports and I have been eating healthy but I did not what cause this chronic pain but since I started participating in this class I realized what was the reason for my chronic pain. This is the most critical think I have learnt from this course. Uyghur women's yoga group 2

Through this yoga class I was able to find out what bother me psychologically. I never paid attention so it was something that was hidden but finally surfaced and I am very happy about it. Thanks to STARTTS the teacher for that! . Uyghur women's yoga group 2

c. Increased energy and activity

As a result of the participation in the yoga classes, respondents were more active and had more energy. This also impacted on their mood. Participants reported feeling happier, more excited, healthy and joyful.

"I became active and apply it became easier for me. I learnt how to live. I am so happy!" Afghan women's yoga group (includes different ethnic communities)

"Because of yoga I am learning how to keep my body active and so many good changes I felt physically in my body..." Ahmadiyya Women's yoga Group (Urdu speaking)

"I also feel mentally relaxed and physically active after these classes." **Ahmadiyya women's yoga Group (Urdu speaking)**

I feel happiness and joy after each session because even I was tired during the class but after the session I feel like kind of joy, sense of accomplishment. Another thing I like is that it is new and I am very happy and excited I tried something new. **Uyghur men's yoga group**

"If there weren't yoga classes, I would may spent the time very unhealthy like watching TV on my phone. So this class helped me to stay fit and healthy and help me to recover." **Uyghur men's yoga group**

"I don't know what the younger generation feels about yoga but, for me as an elderly person, we pretty much sit at home, do nothing much. Engaging in yoga, what you feel is that when you sit around for a long time and do nothing, your body becomes numb and stiff, and if then you suddenly try to do something, your body just do not work with you. But, by doing certain yoga movements, now it is so much beneficial that even if I sit around for a bit and I move around... no dramas. I feel much better." **Tibetan yoga group**

"Tibetans are used to like afternoon nap -those who are not working-, body feels very tired, stiff, but engaging in yoga every day, literally there is no a time that I wouldn't practice it in a free time, instead of napping I would practice yoga. I use my free time to practice yoga."

Tibetan yoga group

d. Increased physical health

Participants reported improvements to physical health as a result of their participation in the yoga classes. Respondents commented that they became more flexible and physically strong. They also reported relief from symptoms of asthma and pain which helped them to feel more relaxed and positive.

It helped me a lot, for example, with chronic pain I was finally able to heal myself with the yoga and never happened to me before. After every single class we have this meditation session and I was able to do it much better then. **Uyghur women's yoga group 2**

I have asthma and struggle breathing and it helps me with that. It improves my mood and gives me positive energy and it helps me with my back pain. I have back pain and yoga helps and makes me more flexible. It improves my self-care, it's helped me a lot because I do it every day" Middle East women's yoga group (Arabic speaking)

"For me because of the Yoga, it is very convenient because I have a breathing problems and after I do this class my breathing is getting better and it is very good for me." Burmese women's Yoga Group (different ethnic communities)

....when we do this yoga, it helps me with my joints and became more flexible because we are doing it in a slow motion and help me with the core muscle to build it up as well. Our body need strong muscle and our joint not to get painful when we grow older, I think relaxing at the same time, the joints get more flexible and the core muscle. Burmese women's Yoga Group (different ethnic communities)

"Yoga, definitely, made a huge difference in my live, especially when you have joint pain or other pain, especially when you work so hard lifting things (...) by doing yoga, that release all the muscles, relieve the pain, and everything is just feeling relax. (...) Definitely, there is a huge difference in my life." **Tibetan Yoga Group**

I love yoga so much. It is my first time. Before my body was a bit stiff and also I have problem with the neck, very stiff and painful and after I did the yoga and these exercises, that improved

a lot and now I can see that is a bit flexible. Burmese women's Yoga Group (different ethnic communities)

"Definitely, I feel benefited because I can see it. I had some mild arthritis. That is gradually going away, and I feel that already. Especially the knee area. I felt a lot of relaxation, I felt that. It is a common problem when you age, you know, knee pain, shoulder pain, back pain. Yoga really benefits it." **Tibetan Yoga Group**

"I have past trauma back in Chinese presence, when I was still a child and I couldn't move my hands much, lifting up or staff like that. So, by doing yoga, I loved the part when the yoga teacher asked me to do this, do that. Exercise like this, encouraged me to move back like that, like you are pulling a rubber band, like that. I practiced that every morning and literally this improved my hand. When I lift my hand now, I can reach the back of my head. Before I couldn't." Tibetan Yoga Group

"I really like the eye exercise because my eyes were not doing well. I had troubles with them, and Yoga really helped me." **Tibetan Yoga Group**

This is my first time also and I like it so much and because of the exercises I think my blood circulation is doing very well. And because the blood circulation goes properly, I feel my body is warm and very comfortable and I like it. Burmese women' Yoga Group (different ethnic communities)

Some participants, especially in focus group conducted to the Tibetan community after 30 week of yoga classes, commented how yoga has improved the participants' physical health in such a way that, in some of the cases, certain symptoms disappeared, and some pains are gone. This is reflected in the following transcripts:

"I had teary eyes before yoga. That really bothered me because my eyes were always tearing and by doing certain yoga, eyeballs movement (our lovely teacher is here, she made us do that pretty much every time and made sure that everyone was doing that), it was very beneficial for me. There are not more teary eyes. Also, I had a little bit of pain in the waistline area and by doing certain movements that also completely gone. There is not more pain in the waistline area. So, it has been very beneficial for me."

"I had redness in my eyes, very itchy. I mentioned to the yoga teacher and after the yoga teacher started to do this particular eyeball exercise and I practiced that daily, the redness and itchiness is gone completely."

"I feel really benefited. I sees a major change in my shoulder area where I had pain, like stiffness. That is gone."

"I felt sore legs, stiffness behind the joint area, the leg joint area. That is gone."

• Increased bonding social capital and reduced social isolation

Participant responses indicated that the yoga classes provided an opportunity to meet new people from within their community and increased the frequency of interaction with existing contacts, which indicates an increase of bonding social capital but also reduction of social isolation. Participants enjoyed seeing each other and spending time together through the classes, which shows increased trust, a sense of belonging and social connection.

"Yes, I met new ladies in the group. I like Tuesdays because Tuesday is yoga" **Middle East** women's yoga group (Arabic speaking)

We are doing things together and I feel that we have a little community, all ladies that we can work together, we can enjoy the same thing together. It is actually very joyful. Burmese women's Yoga Group (different ethnic communities)

We belong to the same community and due to this session we were able to meet to each other. Ahmadiyya women's yoga Group (Urdu speaking)

it is wonderful to see each other, face to face is wonderful but in zoom I still enjoy the group, I feel so happy and encourage me and also help me to compare with others a see how I do the yoga and if I have to improve. It is so enjoyable for me to join with them end empower me to do it better. Afghan women's yoga group (includes different ethnic communities)

That is true, because of yoga class I can see them. We have and met new friends. Burmese women's Yoga Group (different ethnic communities)

I like to join this lesson because for me, I have not seen people for long time but now in zoom I met you guys. I can see some people again. It really help me. Burmese women's Yoga Group (different ethnic communities)

It [the Yoga project] is a special gift for me. I do yoga everyday by myself but when I go to the class, it is more enjoyable and give more calm and joy to see each other and became happy. Afghan women's yoga group (includes different ethnic communities)

The Yoga program also supported some participants their connexion family, This was specially reported by the Tibetan yoga group. Most of the participants in the group were able to practicing yoga with other family members and some of them attended yoga classes with them. This supported family interaction and ties which are indicator of bonding social capital.

"By doing yoga, this helps us improve a lot in terms on family life and everything"

"I was not able to share yoga with other people, but I, my wife and two kids have been doing it together every day. They love it."

"Sitting with a huge group of family member, sitting together, from youngest to eldest (...) they came along with their family. It is so good to see." Yoga teacher

Respondents also stated that increased social isolation was a consequence of the pandemic, and due to the yoga classes, they were able to interact with other nd support each other.

"... especially during lockdown, we met each other, we can hear the voices and everything. I really appreciate it, I am very happy after I joined the classes." Ahmadiyya women's yoga Group (Urdu speaking)

Since everyone is from the same community, it is implied that we kind of know each other already but because of the pandemic we couldn't see each other, through the class we were able to see each other and what is going on in our life. That was very useful. **Uyghur women's yoga group 1**

This has affect me physically and psychologically because during this COVID times is hard to meet with old friends or do some physical activity, outdoor or indoor. So this class was really good, once a week and after every session i was relaxed and get to talk to these amazing ladies. It helped me a lot especially during these COVID times. **Uyghur women's yoga group 2**

"During the lock down everyone was mentally stressed and other things going on in their mind. And physically can't do much. So, by engaging in yoga, I felt releasing that anxiety. And by looking at all the people that you know on zoom, sharing our concerns and helping each other, you know, like "things will be fine" "we are all in this together", it is kind of like sharing things by really encouraging into this form, not just physically engaging in yoga, but also mentally, you know, seeing lot of people. I enjoyed seeing many people during lock down, I really released my anxiety." Tibetan Yoga Group

• Helped participants cope with COVID-19 restrictions

Across all focus groups, respondents commonly reported that their participation in yoga classes helped them to cope with COVID-19 related restrictions. In addition to supporting people to feel less isolated, participants indicated that the yoga helped them to focus less on the pandemic, and feel more relaxed and less stressed. They also reported an improvement in their mood throughout the lockdown.

"Yes I was happy to do this yoga at home and that helped with the COVID-19" **Middle East** women's yoga group (Arabic speaking)

During pandemic, because we couldn't meet to each other, we can't visit or someone visit us, being in like lockdown but thought yoga class it physically activate us and brought a lot of comfort to our mood. **Uyghur Yoga women Group 1**

I think in COVID period we all get stressed and the schooling. When I do this yoga, I feel relieve, especially when you do more. It really relies my stress and I feel really good by doing Yoga. Burmese women's yoga group (different ethnic communities)

it was wonderful because the current situation [COVID-19] we couldn't go out but when I joined the group I feel very happy and give my happiness and when we do the yoga I am really calm and relax and change my life. Afghan women's yoga group (includes different ethnic communities)

Especially during lockdown, we were just getting sick and yoga was a very good relief from our anxiety and depression. Ahmadiyya women's yoga Group (Urdu speaking)

I would say that during COVID, It just make life very easier. I just want to add that the convenience of sitting at home and doing yoga, just help relax and feel free from all the tension around us. Ahmadiyya women's yoga Group (Urdu speaking)

"Before yoga I feel unhappy and stressed but yoga changed my mood" **Middle East women** yoga group (Arabic speaking)

"Before I joined the yoga, I was afraid with COVID and thought very bad about the situation but after I joined yoga I started thinking positive about everything and I learnt how think positively even if something is negative, how I should find some positive in that. It makes me happy and relax." Afghan women's yoga group (includes different ethnic communities)

"Because of COVID 19 we couldn't go out, we basically were in lockdown so this yoga class was something, help me get rid of my boredom I also learnt something new that is very exciting. I also met new people, so it helped me during COVID-19." Uyghur men' yoga group

"I am a mother of three and one of my children is disable so I have to take care of him fulltime specially during COVID because we can't go out we are in lockdown so I was at home taking care of my three kids, it was very stressful but yoga class helped me to take time to myself. Second, during COVID, during the school break, they could not go out, so that was another reason I feel more stress out so again yoga class once a week helped to take some time out for herself, to have some peace and rest. Third, before COVID I had some chronic stress, I was seen a mental health professional but because of COVID, people cannot see each other face to face and also I some other chronic illnesses and I was told I cannot see people during COVID so the time I spent with people was tremendously reduced so this class helped me to cover what I need in term of this." Uyghur women's yoga group 2

"During the pandemic everyone was in lock down, stayed home. You can't do much, very stressed, a lot of things going on, mentally and obviously physically can't do much. So, practicing yoga is one of the things, you know, and that you don't have to go out to do. Just log in and practicing. And when you are not log in, you can just do by yourself, you know, so that is very beneficial mentally and physically for me." **Tibetan Yoga Group**

A participant from the Tibetan Yoga group commented of the benefits of yoga to relieve side effect of the COVID-19 vaccine.

"By doing yoga, it could really bring so much help in the life. When I had the covid vaccine, I had pain in the hand area and by engaging in yoga that really released that pain away. I started feeling much better, especially in the back area where I felt uneasy, there is a little bit of chest area where I felt uneasy, but doing some breathing exercises and other movements, it really helped me in that way, and I appreciate that."

· Increased understanding and acceptance within their community

The Yoga program provided a safe space that offered some participants the opportunity to communicate freely and feel accepted and respected, which is an important indicator of bonding social capital. Participants also increased their sense of connection with others who had experienced similar traumatic events and found communality and solidarity which increased trust and sense of belonging.

Through this class we actually became all friends even that we met for first time in this class, we became all friends and other participants can talk freely, comfortable and safe in the group environment. We did not that we need to hide anything because everybody are straightforward and well communicated. It really safe and comfortable to be in this group. Uyghur men's yoga group

We communicate during the classes, how we feel mentally and psychologically, how we feel today. That helps to have like a sense of group, sense of community. **Uyghur men's yoga group**

"It is hard to meet or see people nowadays, with 2 years of COVID but through this class, we are all people that have been experienced the same in trauma and same traumatic experiences or same psychological problems such as chronic pain and insomnia. The root of this problem is the same story behind. So this class, put all of us together who have experienced trauma....in this class we are doing stretching and we are doing medication and the most important thing is we are able to speak to each other to some one that understand you, who know exactly what you have been going through and they know what to say and how to help you to deal with those things. I think this is really beneficial for me and I met really amazing people in this class, who have each other, who talk to each other in really nice words. Uyghur women's yoga group 2

A participant highlighted that the yoga classes were a valuable space for them to close generational gaps between members of their community, as they were able to communicate and increase their understanding of others in the same class.

.... another most important thing for me is the generational gap is a kind of close because we are not the same age. We usually do not communicate much with younger generations and this class opened up a new channel for us to communicate with younger people and be much closer to each other. That is very important, bring the community, the different generations' together. Uyghur women's yoga group 1

Increased opportunities to maintain culture and language

Analysis of the focus groups also indicates that the yoga classes increased opportunities for refugee communities to maintain their language which increased their confidence and sense of pride. The Uyghur groups reflect this in the following transcripts:

I enjoy the most is the yoga class is tough in my language and surrounded by ladies by my community so all of us communicated in our language. I took yoga classes before, It was in different languages and this class is in my own language and really enjoy it. Uyghur women's yoga group 1

I enjoyed the language because I took class in English but what I learnt in this class using my own language is another level of joy. It is really enjoyable and it is very close to my hearth. Uyghur women's yoga group 1

I love this yoga class because this class is taught in my languages and I do speak English but the yoga classes I had participated were all taught in English and even how good or well we speak English, there are some points that we were able to reach or deep into. This class was much easier to understand and there are some certain points that I deeply understood the meaning. For example, some postures, some psychological related topics. I was able to communicate with my instructor and it made it so easy for me and make me feel I was more

comfortable with class and deeply understand the purpose of participating in this class. **Uyghur women's yoga group 2**

Even I was seen other mental health professional but because they are from a different background, they do not know much about our problems. This class was innovated, specifically designed for me or people like me that speak the language, who knows the culture and know what is going on. It was more straightforward to heal me and help me psychologically. Uyghur women's yoga group 2

Satisfaction with yoga classes and online delivery

Analysis shows that participants also commented on additional aspects of the yoga classes that supported their engagement and level of satisfaction. Aspects such as, time of the sessions, flexibility, mode of delivery, instructor knowledge and content, were some elements highlighted by respondents. There were common expressions among participants such as: "time is really good", "it benefit a lot", "I strongly recommend it for people that have a trauma", "it is beautiful for body and mind", "it is very beneficial because I experience it myself", '…very beneficial for me'. The following quotes reflect on that:

I think the time is really good, one hour class is amazing, even if I miss the first 5, 10 minutes, I can just join and do it. I think the time is fine. The days are fine, so I do not find anything else we can get but if we can, it will be great. Ahmadiyya women's yoga Group (Urdu speaking)

"One hour is a good time and the time is perfect because there are least distractions at this time of the day." Uyghur women's yoga group 1

I do not have comment for improvement. It benefits a lot, this yoga classes are for our body. Because some people may have a trauma, and because the trauma their body is given the pain and can relax, this yoga is very good and I strongly recommend it especially for people that have a trauma. Burmese women's yoga group (different ethnic communities)

"It is beautiful for body and mind." **Afghan women's yoga group (includes different ethnic communities)**

Before I did not understand why people do yoga and stand and raise their hands and why people want to stay still, what is the point? But through this class I leant it is very good psychologically. it is very beneficial because I experience it myself. It is not only physically but psychologically it brings a lot of more benefit that just working out. Uyghur men's yoga group

Through this class is not only communication with this group members but I also advocate for this yoga group because I have seen all the benefits myself. Before I didn't have understanding towards yoga, now I am actively advocating to other people, how is I feel in this yoga class, it is very good for you mental and physical health so I recommend to join it. So I am communicating with other because of the yoga class. Uyghur men's yoga group

Thank you so much for organizing yoga classes like this. It is really necessary for our in term of trauma. I really hope we can continue this classes until we reach some level. It would be more beneficial if it continues. Uyghur women's yoga group 2

"I hundred percent feel that these yoga sessions for the past many months have been very beneficial for me, personally. I totally appreciate Startts for organizing such a beautiful yoga session for us" **The Tibetan yoga group**

"I don't know about others, but I am happy that I had a lot of other health issues that are literally gone. I was more concerned about that in the past, thinking about future, but I feel that I am well, so that is more than enough for me" **The Tibetan yoga group**

Some participants also emphasised that the online delivery of the yoga classes was very convenient for them, especially during the pandemic and lockdown. They were also able to accommodate everyday life commitments in addition to the yoga classes and exercises without any interference.

We did it in zoom, is very convenient and solve a lot of problems, we don't need to wear mask, we do not to look for car park. It is really good and I really appreciate it. **Burmese women's yoga group (different ethnic communities)**

it was very convenient, because in the zoom we see each other and I doesn't take too much time from us because we are housewives and we do not need travelling time. Burmese women's yoga group (different ethnic communities)

It is really relaxing, we are sitting in our own house, we are not doing anything, we are free, I just put my own phone on and start to do my yoga class, so it is really good experience.... Ahmadiyya women's yoga Group (Urdu speaking)

it is really good, we can achieve this at home and that is why we are participating in this because it is a great, great, great help because I am sure if we ask to go anywhere else we can't make it. Because of lockdown, we started to do it at home, but we really enjoyed at home, it is really good. Ahmadiyya women's yoga Group (Urdu speaking)

"My favorite part of the yoga is (...that) you don't need much space to do that exercise. Even at the lunch break or short break you just do that." **The Tibetan Yoga Group**

• Satisfaction with yoga instructor

Participants commented on the quality of the yoga instructors. Many of them reported that they were knowledgeable, encouraging, understanding, and genuine teachers. They also reported that instructors possessed other important skills such as, listening and adapting to the different audiences.

Our teacher, she is really good. We not only learnt yoga, a lot of questions were answer by her which were very beneficial for us. Ahmadiyya women's yoga Group (Urdu speaking)

The way that [the teacher] taught us all that stuff, was very encouraging for us to help ourselves, to take care of ourselves and I have learnt a lot regarding ourselves and she was very soothing and helpful during the COVID for us. Ahmadiyya women's yoga Group (Urdu speaking)

The teacher understood each of us and she taught us the way we were more comfortable with and hope she will continue with future programs like this. **Uyghur women's yoga group 1**

We all want to thanks STARTTS for providing us with this class, with the time and the money and everything so we can be together and we can benefit from it. We also thanks the teacher for teach sincerely and from her bottom of her heart. We are really happy. **Uyghur men's yoga group**

Compare with my other simple yoga classes, this was much more advance and more beneficial. The instructor is very knowledgeable and the way she gives advice and the way she teach the yoga class is like I am not in yoga class, I am practicing yoga with a strength. **Uyghur women's yoga group 2**

"My favourite part is when you band down and you try to touch as far as you can but no dramas. You don't really have to. The yoga teacher says, "Listen to your body". So, we listen to our body and straight as much as we can. All thanks to our yoga teachers, really appreciate it." **Tibetan Yoga Group**

Moreover, yoga classes helped participants in terms of diet and lifestyle. It was specially mentioned by participants of the Tibetan yoga group. A couple of them mentioned how they appreciate the lifestyle information they received in the yoga classes by teachers.

"(...) I like yoga teacher always says tips of healthy diet, what you must have before (yoga practice...) what is the benefit of taking certain diet. It helps you with a lot of things. Iron... a lot of things. I keep this in my mind."

"When the yoga teacher said to us "hey, listen to me. I am giving this tip this week. Buy linseed or buy dates, and this is the benefit of it". Certain things she mentioned every week, and always she gave us two tips a week. I want to show my teacher that I bought the dates, and I am going to eat them"

• Suggestions for improvement

Participants were asked about how future yoga classes could be improved. In general, participants emphasised that continuity of the classes would provide better outcomes. Some participants suggested continuation of the classes online, and others would prefer face to face or mixed delivery.

"To continue this action in the future as well because, not only because of the traffic situation ... we need to stay at home but we need to stay healthy." Ahmadiyya women's yoga Group (Urdu speaking)

"I think if we can probably meet one day and go out together. Meet at least once to gathering or another graduation during January." **Burmese women's yoga group** (different ethnic communities)

I want to continue the program because everyone needs that and it is very important to continue. It is possible to be face to face will be wonderful to see each other face to face and became a part of the community, if no, we should continue by zoom. I ask for different kind of programs, activities and excursions. Afghan women's yoga group (includes different ethnic communities)

"Maybe if the situation changes we can make it face-to-face" **Middle East women's yoga** group (Arabic speaking)

If there are any future programs, we still want to be online but it is much better to meet in person we have a space were we can learnt yoga like in a share space, like face to face. That is much better because we can meet each other in person. We can also after yoga class have some kind of socializing, some coffee. **Uyghur women's yoga group 1**

An instructor also recommended the provision of yoga mats and a permanent space if yoga classes were going to be delivered face to face:

"... if it is possible we would like to get some yoga mat and a permanent space if it is possible, if STARTTS can help." **Yoga instructor**

Participants also commented on the importance of continuity of the classes to increase the benefits for new and existing participants:

I wish this class will continue because it is the first time so it is not many people, not many people have benefited and also a lot of people in our community feels that noting can help them to improve mentally or physically, they are king hopeless. But this class at least, I hope this class will continue and more people get the benefit of yoga class and later on more ladies or more people would join the class or get the benefit and really hope that organizations like STARTTS would help the community to continue with projects like this. Uyghur women's yoga group 1

"They all want the program continue because it can benefit the community and people see physical and mental benefits." Uyghur women's yoga group 1

"I want the program to continue because it is very helpful. Thank you everyone for the help."

Afghan women's yoga group (includes different ethnic communities)

"I am not sure about improvement but we need more sessions, if it can continues as it is very beneficial for us specially form the psychologically perspective." Uyghur women's yoga group 2

"I would like to request, if it is possible, to continue with this Yoga program, because for elderly like me and pretty much all Tibetans who are here to heal their traumas, we have a lot of anxiousness and many stress going on from the past. But with this continuing yoga, that would tremendously help us to release our mental stress and physically also." **Tibetan Yoga group**

Other respondents suggested an increase in the number and frequency of sessions and advanced postures, as well as initial classes incorporating yoga concepts and benefits.

my suggestion is when we start a new sessions, the first and second session I suggest that the first half hour we do not do any physical activity, just talk about what is yoga, how is it helpful, how is it beneficial. So we can also advocate to others what is this and how is going to help. Uyghur men's yoga group

Another thing that can be improve, we can learn more advance possess, more advance yoga. Because of the talk today, I also relearnt things about the benefit of yoga. **Uyghur men's yoga group**

It was wonderful and it is possible we want it twice a week. If it is possible to be face to face near to the water or beach because we are so stressed and it will help us. **Afghan women's yoga group (includes different ethnic communities)**

6. General Conclusion

Overall, the evaluation results show significant and positive outcomes of STARTT's Yoga program. A total of 99 sessions were delivered in 19 weeks to 10 yoga groups from 8 different refugee communities between October 2021 and February 2022. The classes were attended by an average of 77 participants each week.

Participants learned and incorporated yoga techniques and breathing exercises into their everyday life practices. Analysis also shows that participants have seen improvement in their physical and mental well-being. For example, yoga increased participants' coping mechanisms to deal with stress and everyday worries and frustrations, including those associated with the COVID-19 pandemic and overseas conflicts. They improved their sleep, focus and concentration and felt calmer, more relaxed, and happier through the practice of yoga, breathing and relaxation/meditation techniques, and exercises. Participants also felt more flexible and physically strong, and reported improvement and relief from different types of physical pain and symptoms of asthma.

Similarly, analysis of the WHO-5 shows significant and positive progress in respondents' general wellbeing as a result of their participation in the Yoga program. The analysis of the WHO-5 indicates an 18 point difference in percentage scores, which represents a clinically significant change and an overall increase of 29% between pre and post scores of subjective wellbeing. This increase suggests a significant improvement in sleep patterns, reduction of stress levels and positive changes in mood of respondents as they feel more active, energetic and positive.

Another important outcome of the Yoga program is the reduction of social isolation of participants and an increase in social capital. Participants were able to meet new people and maintain connections with exiting contacts within their own communities, especially during the pandemic when people felt more lonely and isolated. Participants also felt more accepted and enjoyed seeing each other and spending time together due to the yoga classes, reflecting an increase in trust, sense of belonging, and social connection, as well as positive bonding social capital among the communities involved in the program.

When exploring outcomes after 30 weeks of yoga classes for one of the yoga groups, thematic analysis shows that benefits are similar and significant as the benefits of other groups. Participants continued improving their physical, mental and emotional health.

Delivering the Yoga program in different languages and adapting the classes to the needs of participants, increased accessibility to the program and understanding of the classes' content by refugee communities. Receiving the yoga classes in their native language helped participants feel more comfortable and very appreciative as well as boosting cultural self-esteem and pride.

Participants also reported being satisfied with the online yoga classes, but some still prefer face to face or mixed delivery. Aspects such as the time of classes, its flexibility, mode of delivery, empathy, and instructor knowledge contributed to their positive engagement and level of satisfaction with the program.

Finally, both participants and yoga instructors emphasised the need to continue the classes to reach better outcomes. They also highlighted the need for an equipped physical space for the yoga classes when transition to face to face delivery is feasible.

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