

**Reported Psychological Effects of the Wim Hof Method –
An Interview Study**

Felicia Suppmann (s1874578)

Department of Psychology, Health and Technology

University of Twente

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Dr. Pelin Gül

Dr. Gert-Jan Prosman

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Abstract

The present global pandemic of Covid-19 has exacerbated mental health problems around the world, highlighting the long-standing social issue of the need for more sustainable and efficient psychotherapy treatment resources. According to existing literature, the recently popular Wim Hof Method (WHM) has demonstrated promising effects in enhancing immunological functions while impacting the autonomic nervous system. Currently in progress, but still lacking, is research on the psychological effects of the WHM. The aim of this study was to explore how people who practice the WHM perceived, and experienced noticeable changes. Semi-structured interviews with eight participants were conducted online to explore the topic at hand. The interview questions were based on Elliott's (2008) 'Client Change Interview Schedule', including the motivation to practice the WHM, the changes experienced, and the personal evaluation of the WHM. The interviews were audio-recorded and transcribed to be analysed. Thematic analysis was used to analyse the data in a step-by-step fashion. The interviewees showed three types of motivation: Task-oriented motivation, motivation for health benefits, and external motivators. The reported changes included positive psychological, positive physical, and positive social changes. The WHM was evaluated as simple and effective while also negative experiences were shared. The findings confirmed that the WHM-practitioners experienced beneficial effects on mental and general health. More research on the WHM's potential to act as a treatment for mental health problems is needed in the future to provide a solid scientific foundation for these findings.

Keywords: Wim Hof Method, (mental) health, immune function, cryotherapy, breathwork

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Reported Psychological Effects of the Wim Hof Method – An Interview Study

In difficult times, we sometimes rediscover the true strength within us (Agarwal et al., 2020). The challenges brought about by the global pandemic of Covid-19 triggered a rethinking of various aspects of the way we live on this earth (Chakraborty & Moity, 2020). In addition to the risk of infection, since the Covid-19 outbreak, psychological responses such as anxiety and depression have increased (Dubey et al., 2020). While a lack of mental health already is one of the main causes of disability worldwide (Shevchuk, 2008), unfavourable psychosomatic consequences, due to mental health problems, are expected to increase in the future as well (Dubey et al., 2020). Since the current crisis is only adding to the already existing burden of mental health problems around the world, it has been suggested that more efficient and sustainable resources for mental health care are needed (Kakuma, 2011). Therefore, it can be beneficial to identify alternative ways to treat psychological problems as an additional resource to increase future capacities.

One initiative that has been developed as an alternative to boost mental health capacity is the Wim Hof Method (WHM). This method has been developed by Wim Hof (aka. “The Iceman”), a world-record breaker from the Netherlands, who is known for withstanding extreme temperatures within different contexts (Van Marken Lichtenbelt, 2017). He has argued this method to be beneficial for boosting individuals’ physical and mental well-being by training the body and mind (Hof & De Jong, 2017). Specifically, the WHM is a systematic approach towards increasing self-controlled physiology, which is based on the idea of reconnecting with nature by consciously adapting to its versatile temperatures. The WHM is defined by the interaction of three practices: breathing exercise, mindset/concentration training, and gradually increased exposure to the cold.

Despite its increased popularity, the WHM has been a research topic in only a few scientific papers. Researchers from the Radboud University in Nijmegen, for example, have

found positive physical effects on the immune function (Kox et al., 2012; Kox et al. 2014). Although not studied directly, positive psychological effects of the WHM have been assumed (Muzik et al., 2018). Consequently, studies on improved mental health, due to the WHM, are emerging, but there is no (qualitative) study exploring this matter yet. Since the method is argued to potentially improve mental health, the present qualitative study aims to explore how people who practice the WHM experience and perceive the possible psychological effects that may result from practicing the WHM on a regular basis.

The Execution of the Wim Hof Method

The company “Innerfire” was founded in 2010 by Enahm, Hof’s oldest son, as a means to teach the WHM to as many people as possible (Hof & De Jong, 2017). To guarantee that the method will be applied safely, the courses advertised by the company convey clear rules on how to proceed. In the following, the prescribed execution of the WHM for apprentices will be portrayed.

To begin with, yoga postures are held for about five minutes to prepare the body for breathing exercises. Then the breathing exercise is performed in a comfortable position, breathing deeply through the nose, mouth, or both. According to this method, deep breathing is defined as abdominal inhalation and expansion, then chest expansion, followed by breathing into the head. From there, the body relaxes, letting go of the breath without any force. Thirty to forty repetitions of breathing in and out constitute one cycle of breathing. After one cycle, a full exhalation is followed by holding the breath for as long as possible while focusing on relaxation and body awareness. When the urge to breathe reappears, the practitioner takes a deep breath in and holds it for 10-15 seconds, pressing it into the head to force blood into the brain. Exhaling without any force is the last step of a full lap, with three to four laps in one session.

After the breathing practice, the company recommends a warm shower, followed by 30 seconds of cold water. In the course of time, both the duration of the cold shower and the

duration of holding one's breath should be increased. When going into the cold, mindful/concentration training is especially recommended to help the adaptation process. Visualizing heat, or an "inner fire" is said to help with this.

The Positive Effects of the Wim Hof Method

The three components of the WHM by themselves are proven techniques for positive effects on the body and mind (Jerath et al., 2015; Muzik, Reilly & Diwadkar, 2018; Behan, 2020; Schreiner & Malcolm, 2008). Breathwork has been a promising tool for healing starting with times prior to recorded history (Caldwell & Victoria, 2011). Exposing the body to cold temperatures as a therapy against ailments is also known as "Cryotherapy" and goes back to at least 2500 BC, when it served as a treatment for inflammation and injuries in Egypt (Freiman, 2005). All around the world, mindfulness is part of many different cultural traditions (Shapiro & Weisbaum, 2020) and helps to decrease suffering by becoming aware of how the mind behaves (Mikulas, 2010).

Breathing Exercise

The breathing exercise executed in the WHM is defined by breathing deeply for an extended period, which leads to an increase of oxygen in the body (Hof, 2016). This way breathing practices can support the balance of carbon dioxide and oxygen in the body, which serves certain regulatory functions, including the pH-balance, the blood-sugar level, and the autonomic nervous system (ANS) (Caldwell & Victoria, 2011). Inversely, chronic uncontrolled rapid breathing is a sign of an overactive and unbalanced ANS. This breathing pattern is common in depression, anxiety disorder, and other psychiatric conditions (Jerath et al., 2015). Especially "suppressed feelings and blocked emotions" often stand in the way of breathing deeply and being in a relaxed state (Ehrmann, 2011, p.2).

Different studies showed that regular breathing exercises could be a primary treatment for certain emotional disorders, anxiety, and depression (Lalande et al., 2012; Sharma et al., 2016; Farhi, 1996). To exemplify, one study displayed breathing techniques leading to a

decrease of symptoms experienced by a sympathetic overactivation, stress, and negative emotions (Jerath et al., 2015). Considering that the WHM is recommended as a regular practice (Hof, 2016), it could be expected that positive effects will gradually manifest themselves as a longer-lasting condition (Lalande et al. 2012).

Cold Exposure

Positive psychological and physical effects of conscious adaptation to cold are justified by the mechanisms of *hormesis*: The health benefits of exposing oneself to a small dose of stressors (Shevchuck, 2008). Controlled amounts of thermal, metabolic, and oxidative stress increase the qualitative function and survival of cells, preparing them to face future stressors more efficiently (Arumugam et al., 2006). An example for thermal stressors would be whole-body cryotherapy, which is usually done by going into a room with temperatures lower than minus 100 Celsius, for two to three minutes (Banfi et al., 2010).

Studies on whole-body cryotherapy showed an increase in well-being and an improvement in the mood of participants (Szczepańska-Gieracha et al., 2014; Rymaszewska et al., 2003). A possible explanation could be higher levels of beta-endorphin, known for its effects on well-being and decreased pain (Bender et al., 2007), which have been observed following cold exposure (Deeter & Mueller, 1981). Researchers from the Wayne State University in Michigan were specifically interested in the involvement of the brain in allowing Hof to handle the cold (Muzik, Reilly & Diwadkar, 2018). Results demonstrated that areas of the brain were activated, which are connected to well-being, self-reflection and the suppression of pain. Effects of enhanced energy due to cold exposure are assumed as well, resulting from the periodic activation of the sympathetic nervous system through cold exposure (Janský et al., 1996).

Mindset/Concentration Training

Concentration has been defined as a “one-pointed attention of the mind” and the gateway to reaching a state of meditation (Lien, 2019, p.41). In the Buddhist tradition,

mindfulness is defined as being aware of the behaviour of the mind, and as a result, letting thoughts come and go, without identifying with them. A typical result of becoming unaware is the process of clinging to thoughts and memories, which inevitably leads to suffering.

Concentration helps to quiet the mind, facilitating its awareness (Mikulas, 2010).

Mindfulness and meditation practices have displayed measures of improvement in anxiety, stress, depression, and general sores of pain (Behan, 2020; Schreiner & Malcolm, 2008). People who engaged in consistent practice also showed changes in brain structure which functionally decreased anxiety and stress (Behan, 2020). Unlike mindfulness-stress reduction training, in which the practices focus on a parasympathetic response (Behan, 2020), the WHM activates the sympathetic nervous system to conquer the cold as a stressor. Worseck (2020), a WHM-Instructor, proposed that the cold is not only a physical stressor, but also a mental stressor, and that it trains the mind to overcome future stressors in the same way that it trains the body to become stronger and adapt to the cold.

The Wim Hof Method: Combining all Three Components

As a combined practice of the three components presented, the WHM could be a promising practice serving to overcome mental health problems, given the positive results obtained by researchers investigating the individual components. All three components have in common the potential to increase well-being in various ways (Behan, 2020; Szczepańska-Gieracha et al., 2014; Lalande et al., 2012), whereby, the ANS was shown to play a significant role in obtaining beneficial effects. Till now, clients are still regularly treated as though the ANS cannot be consciously influenced (Rees, 2015). However, the single components presented, as well as the WHM as a combined practice showed the contrary to be possible (Kox et al., 2014; Pickkers et al., 2012).

Research conducted on the WHM has shown that practicing the method leads to a positive influence on the ANS and a stronger immune system when confronted with an internal threat (Kox et al., 2014; Pickkers et al., 2012). In one experiment, Wim Hof's reaction

to endotoxemia (Ecoli bacteria) was compared to that of a group from a previous study who received the same endotoxemia (Kox et al., 2012). While the previous participants experienced fever and headaches as expected side effects from the endotoxemia, Wim Hof did not. Following that study, a group of volunteers trained with the WHM confirmed the results of reduced side effects following endotoxemia (Kox et al., 2014). When compared to the control group, the trained group was able to increase adrenaline levels just like Wim Hof, which resulted in an anti-inflammatory response. This was indicated by an increase in anti-inflammatory proteins.

The Wim Hof Method and Mental Health

Quantitative studies presented results on how all three components of the WHM possess potential to contribute to more physical as well as psychological health. Their combined practice specifically have presented an improvement in immune function by controlling the ANS (Pickkers et al., 2012; Kox et al., 2014). The ANS has shown to play a vital role in physical and mental health; it is overall essential for adjustment, physically and psychologically (Rees, 2015). The role of the ANS includes “adjustment to threat”, thereby regulating feelings of anxiety and anger, “management of threat”, involving an appropriate immune response, and many more (Rees, 2015, p. 553). Practicing the ability to control the ANS by engaging the WHM might therefore be an efficient way to have an impact on one’s own health in a holistic way.

As presented, the WHM could be a strategic way to consciously access the ANS daily to alleviate physical and psychological complaint. Whether the changes are happening on a physical or psychological level, both are likely to impact each other (Nemiah & Sifneos, 1970; Eisenberger & Moieni, 2020). This holistic perspective was addressed in studies showing that the behaviour of the immune system is a crucial part of determinants addressing inflammation, which in turn influenced the way people behave, think, and feel (Gassen and Hill, 2019). A depressive mood, for example, was detected upon increased markers of

inflammation in otherwise healthy individuals (Eisenberger & Moieni, 2020). Through inflammation, the brain can receive signals to behave in accordance to being ill, which includes depressive symptoms like fatigue, a lack of appetite, social withdrawal and increase sensitivity to social situations (Eisenberger & Moieni, 2020). As a solution to these symptoms, anti-inflammatory drugs were suggested, which however include possible negative side effects. The WHM could be an effective alternative in treating psychological symptoms arising from inflammation, since it showed to have anti-inflammatory effects (Kox et al., 2014).

The Present Study

Existing research on the WHM and its components are presented to show physical effects of the WHM. The current study aims to increase this knowledge on a broader term by obtaining in-depth personalized data about the experienced changes when practicing the WHM. Elliott's (2008) Clients Change Interview Schedule lays out an example to understand the client's perspective of the experienced changes cognitive therapy had on them. Instead of cognitive therapy, the current study considers the WHM after which the practitioners are examined for personal change.

Elliott and James (1989) explain that "the client perspective is the most direct source of information about client experience", while also warning that the client's perspective is biased which might lead to a difference between reported changes and actual changes (Elliott & James, 1989, p.445). To address the limitation of a biased view, the current interview includes the practitioner's motivation towards practicing the WHM, because as a self-help practice, the outcome of the WHM depends primarily on the personal motivation of the practitioner (Mains & Schwein, 2003). Vallerand (1997) distinguishes two different kinds of motivation: Intrinsic motivation is driven by pure pleasure of doing something, while extrinsic motivation is driven by the desire for a specific, often external, result. Intrinsic motivation is considered to be a more ideal source of motivation and is related to greater mental health and

endurance. However, in the absence of intrinsic motivation, extrinsic motivation is considered to be conducive to changing behaviour to achieve goals.

The WHM is a health promotional practice (Hof & De Jong, 2017).), so the motivation experienced by practitioners can be expected to be goal driven, hence extrinsic rather than intrinsic (Vallerand, 1997). Regarding the potential goal orientation, the personally perceived value of the experienced changes of the WHM might further influence the motivation to continue the practice. Also, Elliott's (2008) interview schedule includes questions about the perceived value of the changes that occurred as a result of cognitive therapy, considering this important information about the client's overall experience of the change that took place (Elliott & James, 1989). Furthermore, both motivation and personally defined value have an impact on the outcome of a therapeutic practice (Elliott & James, 1989), and are therefore fundamental information to understand the effect of the WHM.

By looking at the individual's motivational drive to practice the WHM and perceived value of the experienced change, an indication will be given about whether the practice will be continued in the future. This indication seems to be important for future research since a potentially sustainable practice for future psychological treatment can only be effective if actually applied by the people. As a result, the following research questions will be answered to provide additional data to what is already known and to inspire future research:

1. What motivated the practitioners to start practicing the WHM?
2. Do practitioners of the WHM experience changes due to their practice? If so, which changes do they experience?
3. How do practitioners of the WHM evaluate the WHM as a practice?

Methods

Design

The current study took a qualitative approach with an open-ended and semi-structured

interview, which allows for exploration of the psychological effects but also other effects that have been experienced by the interviewees who practice the WHM. Explorative in nature, the current interview study does not provide definite results on the guaranteed effects of the WHM, but an overview of individual experiences, which can be taken as a source of inspiration to conduct future research.

Participants

As the purpose of the study was to explore psychological effects as a result of practicing the WHM, it was a prerequisite that interviewees had experience practicing the method. Therefore, participants were approached in Facebook groups dedicated to people who were practicing the WHM, or people who were eager to start the practice. The following three Facebook groups were chosen as a source to collect interviewees: “Wim Hof Method”, “Wim Hof Method – Germany”, and “Wim Hof Method – UK”. The same request was posted in each group, which included information about the purpose of the study and the request for participants who had experience practicing the WHM. The request was written in English within two of the groups and in German within the group dedicated to Germany. Incoming private messages and a short conversation in which the date and time were set indicated the willingness to participate. On top of that, snowball sampling was used to collect as many participants as possible. Therefore, people known by the researcher, who practiced the WHM were approached via text message.

Participants were collected until a minimum of eight committed interviewees agreed to share their experiences practicing the WHM. Table 1 provides an overview of the interviewee’s relevant information, including gender, age, nationality, and years of practicing the WHM. All of them spoke either English or German fluently which was in line with the language abilities of the researcher.

Table 1

Demographic data of participants

| | Gender | Age | Nationality | Years of practicing the WHM |
|---------------|--------|-----|-------------|-----------------------------|
| Interviewee 1 | Male | 43 | USA | 7.0 |
| Interviewee 2 | Male | 52 | Germany | 5.0 |
| Interviewee 3 | Male | 32 | Germany | 3.0 |
| Interviewee 4 | Male | 47 | Germany | 2.0 |
| Interviewee 5 | Female | 43 | Germany | 0.33 |
| Interviewee 6 | Female | 30 | Australia | 1.5 |
| Interviewee 7 | Female | 39 | UK | 2.5 |
| Interviewee 8 | Male | 58 | UK | 1.0 |

Materials

The questions, which make up the open-ended survey, have been put together through various sources. Serving as a foundation of the survey, Elliott's (2008) Clients Change Interview Schedule was used to answer the research questions. One example question from this part of the survey is "What changes, if any, have you noticed in yourself since you started practicing the Wim Hof Method?". Literature on intrinsic and extrinsic motivation (Steele, Bergin & Wade, 2011; Pelletier et al., 1997; Vallerand, 1997) served as material to create further questions about the nature of motivation of participants, answering the first research question. One example question of this part of the survey is "What served as the main motivation to start practicing the WHM?". Altogether, the survey comprises questions about motivation, external and internal barriers/resources in practicing the method, experienced changes, personal evaluation of that change, and personal evaluation of the WHM in general. The final survey can be viewed in appendix 2.

A laptop and a cell-phone were used as devices to conduct the interview. According to the interviewees' preference, Zoom and Skype served as applications to meet the interviewees over a video call. The interviews were either recorded on Zoom or on the cell-phone.

Procedure

The beginning of the research study was marked by the recruitment of participants to ensure participation sufficiency. The interviews started out with an informed consent (see appendix 1), which was approved initially. Altogether, the length of the interviews ranged between 20 and 45 minutes. Finally, the interviews were transcribed manually and verbatim, saved securely on the laptop of the researcher, and analysed to answer the research questions. Before the initiation of data collection, the study was proposed to, and eventually approved by, the ethics committee of the University of Twente (application number: 210752).

Data Analysis

The word files with the transcribed interviews were opened to start the data analysis. For each interview an additional word file was created including a table with two rows. The transcribed interview was copied into the left row. While the interview was read, codes were created in the right row of the table. The data analysis followed the pattern of thematic analysis.

In line with the approach of thematic analysis, the responses of the participants were read multiple times to make sure that the complete data had been thoroughly understood and incorporated into the next steps (Braun & Clarke, 2006). Thereby, notes were taken and responses were marked, in deference to the research questions. Notes were partly taken by hand to become more intimate with the data, as suggested by Leavy Gnon and Ross (2009). Through further reading and familiarization with the data, quotes were extracted and organized into themes for further analysis, thereby, any information that shed light on something potentially relevant to the research questions, was taken into account. The extracted quotes were then re-read and organized into final themes, which were given representative names. Another round of re-reading and close analysis of the quotes lead to further differentiation of the themes which finally resulted in the creation of underlying codes. The process of editing the themes followed the guidelines of creating a network of codes within one theme, which are as similar as possible, while creating a clear distinction between

the themes. The complete scheme of themes, codes, and quotes, which were extracted from the interviews during the analysis process, can be found in Appendix 3.

Results

Reported Motivation to Start and Continue Practicing the Wim Hof Method

The interviews revealed three different themes as main motivators of the interviewees: “Task Oriented Motivation”, “Motivation for Health Benefits”, and “External Motivation”.

Table 2 displays each theme with its corresponding codes.

Table 2

Coding scheme answering the first research question

| Themes | Codes |
|--------------------------------|--|
| Task-Oriented Motivation | - Oriented towards Personal Challenges - Oriented towards Something New |
| Motivation for Health Benefits | - Psychological Benefits - Physical Benefits |
| External Motivation | - Teaching the WHM to Others - Seeing the WHM as a Higher Mission |

Task-Oriented Motivation

One form of motivation to start practicing the WHM was ‘task-oriented motivation’. In total, four interviewees reported this type of motivation that made them either start or continue the WHM. The tasks which make up the WHM were either motivated by a search for ‘personal challenges’ or motivated by a search for ‘something new’. Therefore, the relevance of starting the WHM lay in the characteristics of its tasks.

Oriented towards Personal Challenges. Two interviewees were motivated by the personal challenge the WHM was providing them with after they had already started the practice. Therefore, the personal challenge they desired was a motivator to continue practicing

the WHM. Interviewee 6 talked about her process of practicing the WHM by explaining that she liked to push herself to her limits: “(...) *I like to push myself like that, to push my body to its limits, that felt good to me, ehm...yeah, and I think I am really good at dealing with fear situations, with scary things, as long as I know, I am not going to die (...)*”. When talking about her motivation to keep practicing the WHM, interviewee 7 also reports the desire to challenge herself, while pointing out however that this should happen within her personal comfort zone: “(...) *I like pushing my body obviously pushing it within my own comfort zone, but I like to see where it will take me (...)*”

Oriented towards Something New. The WHM was sought out as a practice by two interviewees who were motivated to engage in something new for them. Interviewee 4 explained that he liked to try new things and see what happens on a mental and physical level as a result, he said when talking about his motivation to start the WHM: “(...) *so I really have to say it, I love trying new things, experimenting, seeing what happens, mentally, physically, and so on, a lot of things I've already tried (...)*”. Interviewee 5 explained her motivation to try the WHM and added that she was very satisfied with the decision to start the WHM : “*I like to try out new things anyway, so I thought you'd try it out and see what it's like, yep, and I thought it was really good.*”

Motivation for Health Benefits

Seven interviewees started the WHM motivated by either psychological or physical health benefits. As interviewees continued to practice, they experienced favourable health changes, further motivating them to continue with WHM.

Psychological Benefits. Two interviewees started the WHM out of the motivation for psychological benefits. Interviewee 6 explained her motivation to balance her mood more: “(...) *to me that was sort of something I was looking for as well, just something to help me connect to myself a little bit better, and maintain, yeah...a bit more of a balanced sort of mood, ehm (...)*”. When talking about his motivation, interviewee 1 started talking about the

competition anxiety he used to feel when going into a professional fighting match in front of an audience. Thereby, he tried the WHM to help him overcome his anxiety, he explained: *“So, I used to have very intense competition anxiety (...) and I realized that when Wim Hof injected with the endotoxemia, and he was supposed to get sick and he did not get sick, and then he taught the guys, and they were supposed to get sick and they did not get sick. And I thought, that sickness, that blue that they are supposed to get feels so much like competition anxiety it is identical (...) and so, I thought: What if it worked for that, and eh...sure enough, it did work for that.”*

Physical Benefits. Four of the interviewees started to commit to the WHM for physical benefits. Interviewee 2 explained that he was aiming for more physical care as he seemed to have been neglecting himself in this area: *“(...) so I had a busy phase at work, had also put on a bit of weight, and thought: I need to do something for my body (...)”*.

Interviewee 5 found a new kind of motivation after having already started practicing the WHM, she said that the benefit of becoming more robust against the cold was motivating her: *“(...) ehm, I am very frosty, so I have constantly cold hands, cold feet, and then I noticed, that's good for it, that has motivated me then (...)”*.

When talking about her motivation to practice the WHM, interviewee 7 opened-up about her experience with back pain and that the WHM was supposed to help her with that, she explained: *“I always had to do with back problems, and I will always have to see an osteopath, and would have regular massage for maintenance and stuff.... So, the driving force has always been...ehm...pain relief for me with Wim Hof”*. Interviewee 8 was motivated by his attempts to find practices to help overcome cancer after experiencing the side effects of chemo therapy. As a result, he added the WHM to his current treatment to help him recover, he explained: *“...and then I relapsed and then I had some more chemo, that I did not particularly (...) I had a lot of side effects and I had to stop it, and I started a new one...and then I sort of hit upon the Wim Hof Method, and I saw they had some powerful physiological*

effects, particularly regarding immunity and inflammatory eh...factors, so I thought that would be a good one to do, so that was my reason, was to try to maximize eh...the effectiveness of the treatment that I am on."

External Motivation

Four interviewees were motivated to continue practicing the WHM due to an external motivator. The more common external motivators found were the desire to provide others with the knowledge and experience that they gained throughout the practice. The other external motivator was related to the first, but defined the WHM as a higher mission to restructure societal thinking.

Teaching the WHM to Others. Under all participants, Interviewee 1 had been practicing the WHM the longest and had been teaching the method at the time of the interview. He shared his perspective from the point of view when he realized that he would like to teach the method to others. Thereby, he showed his enthusiasm towards the WHM and explained how he felt obligated to share what he had witnessed with others: *"(...) I have no choice but to share this with as many people as I can because man we have a lot, we can do a lot more than we think we can, and Wim proofed it."* Interviewee 5, on the other hand, was the one with the least amount of experience practicing the WHM and at the time of the interview, she was just thinking about doing the instructor training to teach the method to others. Altogether, she did not seem as determined as interviewee 1, but due to her conviction of the value of the method, she still considered to start teaching: *"I'm thinking of doing the trainer with a friend of mine at some point, because we're both so convinced that we'd like to teach it to other people too."* Interviewee 7 also expressed the desire to teach other people, as she would like to show others what could be possible, as a result of practicing the WHM: *"I want to get certified, because I want to be able to show people that they can...that they can be the masters of their own mind (...)"*.

Seeing the WHM as a Higher Mission. Two interviewees went beyond the desire to show others the possibilities of the method, seeing in the method the potential for societal rethinking. Interviewee 3 pointed out that he thought the WHM should be a practice to reconnect people to nature and make them realize this connection again: *“I personally believe that it's much more about our earth, that it's much more about nature, that we understand much more that we actually came out of nature (...)”*. Interviewee 1 explained how he thinks the WHM could change societal thinking in regards to the beliefs of what the individual needs to be satisfied: *“(...) if you get good at this stuff (...) you do not give a shit about anything, and you will not need to buy anything...and you do not want anything, and you are completely content, and...that is not how the world works. The world wants you to be hungry to buy stuff (...)”*.

Conclusion

Each interviewee had their personal motivation to start practicing the WHM. Since everyone was still practicing the WHM at the time of the interview, they also had an incentive to continue the WHM. Half of the interviewees were motivated by the WHM as a task itself, as a way to experience something new or to take up a personal challenge. Most interviewees were aiming for psychological or physical health benefits as motivation to start or continue practicing the method. After experiencing the benefits of the WHM, half of the interviewees felt externally motivated to bring the WHM to the world. All in all, the interviewees showed motivation to practice the WHM, either maintained, or expanded with further practice, due to experienced changes following the practice.

Reported Experienced Changes due to the Wim Hof Method

Each interviewee experienced changes as a result of practicing the WHM. The three themes which represent the experienced changes of the interviewees included ‘physical changes’, ‘psychological changes’, and ‘social changes’. Table 3 displays each theme with its corresponding code.

Table 3*Coding scheme answering the second research question*

| Themes | Codes |
|--------------------------------|--|
| Positive Physical Changes | - Improved Physical Performance - Decrease of physical Complaints - Weight loss |
| Positive Psychological Changes | - Reduced Stress - Reduced Anxiety -Releasing/Letting Go -Body-Mind Connection - Improved Confidence |
| Positive Social Changes | - Improved Quality of Social Contact - New Social Contacts and Friendships |

Positive Physical Changes

Seven interviewees experienced physical changes. The three physical changes identified were “improved physical performance”, “decrease of physical complaints”, and “weight loss”. Out of these three changes, decrease of physical complaints was reported the most.

Decrease of Physical Complaints. Four interviewees experienced a decrease of physical complaints. Interviewee 1 talked about his improvement of lung capacity through practicing the WHM: “(...) *I had low lung capacity, I would get sick five or six times a year, and it stopped immediately, it stopped, I did not get the sniffle for a year and a half after I started this stuff.*” Both interviewee 3 and interviewee 7 had experience with back pain. While interviewee 3 experienced a complete diminishing of his pain, interviewee 7 talked about the relief of her pain. Interviewee 3 said: “*So, I had back pain, since I went into the ice*

water it is also like this that the back pain has gone away completely. Yes, and the back pain was not a little bit, but it was more extreme”, and interviewee 7 explained: “So, in the past I had a very weak back, and I always had to do with back problems, and I will always have to see an osteopath, and would have regular massage for maintenance and stuff, and ehm...the pain relief that I get from doing this method, and once I started dipping as well, cold exposure, the effect on the inflammation is just immense.” When talking about her experience with pain, Interviewee 5 talks about the disappearance of her pain connected to her monthly period. She explained: *“(...) when I get my period, ehm, often, ehm, strong pain on the first day, so really strong that I can't work, can't get up, can't do anything, nothing works. And that's gone since I've been doing that, so that's completely gone, so that I almost don't notice that anymore (...)”*.

Improved Physical Performance. Interviewee 1,2 and 8 reported improved physical performance as a result of practicing the WHM. While interviewee 2 spoke generally about an improved physical performance, interviewee 1 and 8 reported how their physical performance, which suffered from their physical complaints, improved over the course of practicing the WHM. Interviewee 1 explained how he was not able to run far, while running longer distances now is easier for him: *“I was never able to run very far because of my lung capacity, I did not have good biomechanical breathing, but then applying the Wim Hof stuff to running, now I can run 10 km in bare feed.”* Meanwhile, interviewee 8 talked about his improved fitness, which deteriorated due to his chemotherapy. He explained: *“(...) as a result, my aerobic fitness is very high even though I am not doing a lot aerobic training (...) you know one of the problems with my chemo is tremendous loss of fitness and there were times where I could really not leave the house, ehm...but I can currently run up the hill, so yeah, that is real, the impact on the resting heart rate and aerobic fitness.”* Interviewee 2 summarized his observation on the improvement of his physical performance: *“(...) definitive a higher performance, faster physical recovery, a way to relax quickly and effectively.”*

Weight loss. Three interviewees reported weight loss while practicing the WHM. Interviewee 5 did not consider it as very important to herself, but nevertheless noted: *“Ehm, what else, which is not so important to me personally, what else I noticed is that you lose weight with it.”* Interviewee 6 was not sure whether to credit the WHM for her weight loss, but she still mentioned it, because of the possibility that both were connected to each other: *“(…) it is hard to measure the tangible effects of what it is doing to my body, but I know that I have lost weight in the last sort of twelve months (…)”*. Interviewee 8 assumed that his weight loss was indeed due to the WHM, he explained: *“I lost quite a lot of weight, I deliberately lost quite a lot of weight and I think it is quite useful for maintaining weight loss, because I think it burns a lot of calories up, so I think it is really good from that point of view.”*

Positive Psychological Changes

All interviewees experienced at least one form of positive psychological change, after starting to practice the WHM. Five different psychological changes were extracted from the interviews, namely, “reduced stress”, “improved confidence”, “body-mind connection”, “releasing /letting go” and “reduced anxiety”.

Reduced Stress. Four interviewees reported a reduction in stress as a result of practicing the WHM. Interviewee 3 talked about the moment he realized that he had not experienced stress for a while: *“(…) I can remember a situation where...I had to stop myself and realise for a moment: Hey, you haven't felt stress for a long time.”* Interviewee 4 did not say that he does not experience stress anymore, but that he developed to be more resistant towards it: *“What I can definitely say is that I have become much more stress-resistant through the method.”* When talking about their experiences with decreased stress, Interviewee 5 and 8 talked about being generally less prone to stress. As an example, interviewee 8 explained: *“I have definitely less, ehm...I am definitely less, I am less stress responsive, which is probably to do with the method.”*

Improved Confidence. Four interviewees reported increased confidence from practicing the WHM. Interviewee 3 explained his increase in confidence to be a feeling of lightness that changed his perspective on the difficulty of things in life: *“The very first thing that just came to me first and still is, is the lightness...It means life is what life is, and through my lightness or heaviness, I can see it from a different perspective. That means no matter how hard it is out there, if I have some lightness inside of me, then it's not hard.”* When talking about his experience with increased confidence, interviewee 4 talks about his experience of how his mind changed into the direction of getting a sense of what is important for him: *“(…) but also, one of the things I think the method changes a mindset there, really yes, and you notice, at least I noticed, what are the things that are important to me, what is good for me, without consideration for others, because I don't really have to do that, and it only takes place in my head.”* Interviewee 6 explained that her biggest change was her relationship with the cold and how it empowered her and made herself mentally stronger: *“(…) but that for me was very empowering thing to be able to do that, and just to relate differently to the cold, it gives me that sense of my own strength, so I think that is probably the biggest shift of all for me, that internal one and how I relate to the cold.”* When talking about her experience with confidence, interviewee 7 explained how breathwork helped her to get a sense of being a strong person: *“(…) the breathwork in particular certainly made my mind strong...I feel like a very strong person now, whereas before, I have always lacked self-confidence really through my whole life”.*

Body-Mind Connection. Five interviewees talked about how they experienced more body-mind connection due to practicing the WHM. Interviewee 2 and 6 generally explained that they experienced a connection with their body. For example, interviewee 6 said: *“(…) it is a really nice way to feel that body-connection in a really true way”.* When talking about their experiences feeling the body-mind connection, Interviewee 3 and 4 both talked about how they feel fully connected when being in the cold water. For example, interviewee 4

explained: “...yes...I then go into the water here (showing to his neck) and am then really completely within myself “. Interviewee 7, on the other hand, referred to the breathing exercise when talking about connecting to her body, saying: “*What the breathing does for me, it allows me to make that connection in my body (...)*”.

Releasing/Letting Go. Three interviewees experienced moments of releasing and letting go of something that had been described differently by each interviewee. When talking about his experience of letting go, interviewee 4 explained that he was releasing a blockage: “*I have also experienced this in many seminars with myself but also with others. Somehow, some blockage is released and then it flows (...)*”. Interviewee 5 mentioned how she noticed that the WHM did help in the process of letting go, but her experiences with it were not described any further than that: “*...that is something we all deal with, to let go of things and I say, that also influences that positively.*” Interviewee 7 explicitly talked about the release of trauma when practicing the WHM during one of the official courses of the company “Innerfire”, explaining: “*(...) but when I did the fundamental course, that really started to release trauma for me and take my practice to a very much deeper level than when I was doing it before to myself.*”

Reduced Anxiety. Two interviewees reported reduced anxiety from practicing the WHM. Interviewee 1 referred back to his competition anxiety which motivated him originally to start practicing the WHM. He revealed: “*In fact, competition anxiety was gone, I mean zero.*” When talking about her experience with reduced anxiety, interviewee 5 said that the WHM could help her to become more relaxed: “*(...) and for me it had a very quick effect on my health, I have a lot to do with anxiety, with partly depressive phases, I would say partly, and I have become much more relaxed.*”

Positive Social Changes

Five interviewees experienced social changes as a result of practicing the WHM. Social changes were shown in the form of “improved quality of social contacts” and the creation of “new social contacts and friendships”.

Improved Quality of Social Contact. Three interviewees talked about how they experienced improvement in social contacts. Interviewee 3 explained how the psychological changes of practicing the WHM could change people in dealing with each other. He said: *“The lightness is there. The lightness is also noticeable in your relationships, that is, people are much cooler after such events, that's just the way it is.”* Interviewee 4 observed how experienced psychological changes impacted the social in life, he announced: *“This then has an impact on social interaction, how do I deal with others do you go straight to the ceiling or are you just relaxed, see the positive, start all over again.”* When talking about her experience with improved quality of social contact, interviewee 5 referred to how her psychological changes had a good impact on how she communicates with people. She explained: *“Well, I'm not easily upset by anything anymore. That helps me in my job, I'm in customer service, on the phone, people are usually very unrelaxed, of course no one calls when everything is nice, but when there are just any problems, that helps me a lot.”*

New Social Contacts and Friendships. Two interviewees mentioned that they encountered the experience of making new social contacts and friendships. Interviewee 8 talked about his future plans of connecting with people who also practice the WHM, he said: *“I have also arranged to collect some Wim Hof people to camp together in August.”* When talking about her experiences with new friendships, Interviewee 7 explained that she found a second family: *“(…) so it has opened up new friendships that I would not have had, have I had not started the method...so...they are like my second family now.”*

Conclusion

All interviewees reported at least two forms of positive change as a result of practicing the WHM. All interviewees experienced psychological changes, all, except one interviewee,

experienced physical changes, and the majority of interviewees reported social changes.

Generally, psychological, and physical complaints, which had been experienced before the start of the practice, improved after the course of committing to the WHM for some time.

These health-related changes were often referred to as automatically changing other aspects of life, as in relationships and social interactions in general. Especially, an improved psychological state was attributed to improvements of social encounters. Referring back to the initial motivation of the interviewees to practice the WHM, it can be said that all participants were given what they were looking for considering their initial goal.

The Perceived Value of the Wim Hof Method

The perceived value of the WHM was represented by three themes in the interviews. The most prominent theme was the ‘positive evaluation of the WHM’. Furthermore, ‘negative experiences of practicing the WHM’ was depicted from the interviews, as well as information about ‘practicing only the cold exposure as part of the WHM’. The last theme stands by itself and was not represented enough to build subcategories. Table 4 displays each theme with its corresponding codes.

Table 4

Coding scheme answering the third research question

| Theme | Code |
|--|---|
| Positive Evaluation of the WHM | - simplicity and effectiveness of the WHM - improved experience in a group and/or with an instructor |
| Risks of Practicing the WHM | -risks of the Breathing Exercise -risks of cold exposure |
| Practicing only the cold exposure as part of the WHM | |

Positive Evaluation of the Wim Hof Method

The WHM was positively evaluated by all interviewees considering that everyone experienced positive effects on themselves and decided to continue practicing the method. The WHM was explicitly praised to be simple and effective. Further, the method was recommended to be practiced with an instructor and/or a group, in addition to practicing alone, for a more intensive experience.

Simplicity and effectiveness of the WHM. Six interviewees, specifically interviewee 1,2,3,4,5, and 7, considered the WHM as a simple and effective practice. As an example, interviewee 2 explained that he was explicitly looking for a simple and effective method which would deliver the results he was looking for, he said: *“I am by nature, perhaps I should add, a business economist, right, in this respect I am trimmed for effectiveness, and so I always look for that which has the greatest effect with the least amount of effort, and that's where I found Wim Hof, both the breathing and the cold showering...ehm...amazing.”* Interviewee 4 praised the WHM to be easy to learn and fast to develop in doing the practice. He explained: *“And what I find fascinating about the method is that in the beginning it is very easy to learn, quick and dirty, and then very quickly you can continue to develop and go deeper.”* Interviewee 7 explained how a simple practice, like the WHM, had a big impact on her life: *“(...) yeah it was that simple, something as simple as this breathing technique, and then I'll be doing the cold exposure as well. It just allowed me to put my life back together, just amazing (...)”*

Improved Experience in a Group and/or with an Instructor. Four interviewees recommended experiencing the WHM in a group and/or with an instructor. Interviewee 2 and 7 talked about how doing the WHM-practices with a group could be a powerful experience. As an example, interviewee 7 explained: *“I do not know if it is because I put more effort in, or whether it is because you are in that vortex of energy, I do not know, I do not really question why it is more powerful when I do it with people than without, but it definitely is.”* Interviewee

4 and 6 recommended a more intimate practice with an instructor who would guide the practitioner. As an example, Interviewee 4 referred to the way he let himself fully go when he was with an instructor, more than when being alone. He explained: “(...) *when you let yourself be guided by an instructor and go in, it's something else than when I do it at home, at home it's routine by now, but when you completely let yourself fall in and follow the voice, that's been the absolute kick.*”

Risks of Practicing the Wim Hof Method

Even though each participant reported positive effects from practicing the WHM, three interviewees still had negative experiences either with the breathing exercise or with the cold exposure, while one interviewee feared negative experiences from the breathwork explicitly.

Risks of Breathing Exercises. The risks of breathing exercises were mentioned by two interviewees. Interviewee 5 did not have any experiences with the breathwork, because she did not engage in it out of the fear of passing out. She explained her fear saying: “*With the breathing, I have also tried that, but they also write that it can lead to you becoming unconscious, for example. And I'm so afraid of that*”. Interviewee 7 does practice the breathwork, one time however, she felt somewhat sick from the breathwork, explaining: “(...) *and I had almost like a bit of an after drop, I have never been that deeply into my breathwork before, and I, and I finished, and my body would like...I would feel very sick and I could not, it was almost like a hangover but without the headache, that is how I would describe it (...)*”.

Risks of Cold Exposure. Two interviewees had negative experiences with cold exposure. Interviewee 2 explained that he developed a cold allergy for some time: “(...) *then the phase when I developed a cold allergy, I had a more split relationship with it.*” When talking about her negative experience with the cold, interviewee 6 explained that she would start shivering strongly sometimes which made her aware of the potential risks. She explained: “(...) *sometimes I get an uncontrollable shiver that makes it almost difficult for me*”.

to even get home, ehm..so yeah that is, I definitely sort of have come face to face with the risks of the method.”

Practicing only the Cold Exposure as Part of the Wim Hof Method

The WHM is made up of practices which can be done by themselves. Therefore, the method is flexible in how it can be practiced, even though there are instructions which advise to do the method a certain way for maximum results. Nevertheless, two interviewees only practiced the cold exposure. After interviewee 5 talked about her fear of the breathing exercise, she also explained that she was too impatient to do the breathwork: *“What I don't do is breathing, which is an essential part of it, I'd say, because I have a hard time with it, I'm impatient.”* When talking about the way she practices the WHM, interviewee 6 explained how she did not feel like doing the breathing exercise: *“(…) and that is what I feel I have done with the breathing, for me it just did not feel align at this point in life, to doing that consistently”*

Conclusion

The WHM has been evaluated positively by all interviewees. The majority of the interviewees thought that the method was simple and effective, and half of the interviewees gave recommendations about further deepening the practice by joining a group or practicing with an instructor. Nonetheless, half of the interviewees mentioned the risks of the WHM as well, and three of them already experienced a negative side effect from the practice. Despite those possible negative side effects, the WHM still continued to be practiced by all interviewees, and the positive view towards the method still exceeded the negative experiences.

Discussion

The purpose of this qualitative study was to gain an individualized understanding of the experienced psychological effects from practicing the WHM. As an alternative practice, which is argued to increase general health, the WHM reached popularity. Researchers have

scientifically proven the WHM's beneficial physical effects on the immune system and the function of the ANS (Kox et al., 2014; Pickkers et al., 2012). Meanwhile, psychological benefits were assumed as well (Muzik, Reilly, & Diwadkar, 2018). Currently, researchers from the University of California of San Francisco are investigating the impact of the WHM on stress resilience and mental health (Wim Hof Method, 2021). The current study sought to contribute to this emerging body of knowledge by exploring how people experienced and perceived the psychological effects of practicing the WHM.

The main findings revealed that the majority of interviewees experienced positive psychological, physical and social changes while practicing the WHM. In addition, the majority evaluated the WHM as a simple and effective practice, while half of the interviewees recommended to expand the positive results by practicing with a group and/or an instructor. Despite the positive remarks, a minority of the interviewees still mentioned negative experiences of practicing the WHM. Also, a minority mentioned that they only practiced the cold exposure but still experienced the positive effects of the practice. The results will be discussed, *inter alia*, in the light of literature which has been published about the single components of the WHM (breathwork, mindset/concentration training and cold exposure) due to the lack of existing studies on the psychological effects of the WHM.

The Motivation behind Practicing the WHM

The findings of the first research question indicated that the interviewees were motivated to begin practicing, and to continue practicing the WHM. The interviews yielded three main categories of motivation: task-oriented motivation, motivation for improved physical and psychological health, external motivation. Half of the interviewees were motivated by the task of the WHM itself as a personal challenge or something new to experience. The majority of interviewees were dealing with either physical or psychological ailments which they hoped to reduce or eliminate. While practicing the WHM, half of the interviewees also expressed a desire to share their knowledge of the practice with others, so

that they, too, could reap the potential benefits.

The frequent occurrence of desired health benefits and external motivators suggests that the interviewees' motivators to practice the WHM were primarily forms of extrinsic motivation aimed at a specific goal, such as personal health or assisting others to improve (Legault, 2016). Despite the fact that intrinsic motivation is shown to be a more long-term form of motivation, extrinsic motivation is shown to be effective when intrinsic motivation is unavailable (Legault, 2016). The degree of cold exposure practiced as part of the method lies outside the average modern human comfort zone (Shevchuk, 2007), which promotes the benefits of an extrinsic motivational force. Because possible negative side effects were mentioned by the minority as well, extrinsic motivation, acting as a strong driving force, was most likely helpful to keep the interviewee from quitting the practice in the long run.

Some interviewees were motivated by the fact that the WHM was either something new or personally challenging to them. Kiknadze and Leary (2021) found that participants who appreciated the opportunity to challenge themselves in achieving goals expressed more confidence in taking on tasks that appeared challenging. Hence, the desire for personal challenges could have increased the overall motivation to practice the WHM and possibly increased the frequency of positive changes. Task-oriented motivation seems to be most closely related to intrinsic motivation compared to the other motivational forms found, since the focus is on the task itself and not a specific outcome (Legault, 2016). Because the degree of difficulty of the WHM can be varied, it is possible to keep the challenge high, and thus the degree of enjoyment for the task. Two interviewees reported that they only practiced the cold exposure because they did not feel like doing the breathwork. This could be another indication of an intrinsic motivational approach to practicing the WHM.

All in all, the WHM is promoted to improve general health, which is reflected in the reasons given by interviewees for starting the WHM. Even though this is an extrinsic motivation, it can be said that improved health is a highly functional motivator (Riedel et al.,

2002), as confirmed by interviewees who stated that their illness motivated them to do the practice. In the end, regardless of motivational style or life circumstances, all interviewees kept practicing the method at the time of the interviews and considered the WHM as contributing to positive changes in their lives.

The Experienced Changes from practicing the WHM

Interview answers from the second research question revealed that regular WHM practice resulted in positive psychological, physical, and social changes. All these changes were considered life enhancing and significant by the interviewees.

The psychological changes included reduced stress and anxiety, improved confidence, body-mind connection, and releasing/letting go. Literature has depicted the decreased physical stress responses as a result of gradually adapting to the cold (Worseck, 2020). In addition, Worseck, (2020) proposed that the learning effect of being relaxed in a physically stressful situation (e.g., cold water) will contribute positively to dealing with psychological stressors as well. This would be consistent with the findings showing that half the interviewees reported that they were less stress responsive as a result of practicing the WHM. This learning effect is known as "psychological cross adaptation," and it refers to the ease with which a mental stressor can be handled after learning how to deal with, and relax in the presence of, a physical stressor such as freezing water (Worseck, 2020, p.137).

The ANS, which regulates anxiety and stress responses among other things (Rees, 2015), is another contributor worth mentioning in light of the current findings, as each component of the WHM has been shown to have a positive effect on the ANS (Caldwell & Victoria, 2011; Janský et al., 1996; Schreiner & Malcolm, 2008). Consequently, reduced levels of stress and anxiety are expected from practicing breathwork, cold exposure, and mindfulness/concentration. The multifunctional contribution of the ANS could explain why also interviewees who only practiced a portion of the WHM felt less stressed and more at ease.

Improved confidence was represented in the interviews as the empowerment of being strong enough to conquer the cold and overcome personal challenges. Taking steps towards positive change is an act of hope, which is defined as “the idea that the future will be better than the now” (Bohlmeijer & Hulsbergen, 2018, p.73). Depression, on the other side, has been characterized as the “absence of faith in the future”, which is a result of “acquired hopelessness” (Bohlmeijer & Hulsbergen, 2018, p. 71). According to the findings of the first research question, all interviewees were motivated to commit to the practice, insinuating that all interviewees were already optimistic, and thus hopeful for a better future, when starting the WHM. Seeing oneself change positively through personal action in addition, strengthens the mind for future challenges (Worseck, 2020), which is in line with the findings showing improved confidence in half of the interviewees.

A possible re-enforcer of the findings showing both reduced stress and anxiety could have been the changes reported of increased ‘body-mind connection’ and the process of ‘letting go’ or ‘releasing’. Suppression, as a form of internal imbalance, can be expressed in many ways, like anxiety or depression as well as physical illnesses (Cloninger, 2007; Lalande et al., 2012). Worseck, (2020) explained that the cold exposure is intensive enough to force the connection with the body. Unless this connection is made, it is not possible to reach the state of relaxation in the water. This relaxed and connected state of being favours the process of letting go from thoughts and tension. Breathwork has also been shown to aid in the process of releasing suppressed feelings (Lalande et al., 2012). The findings showed that all participants were either in a state connected to the body and/or engaged in the process of letting go. Worseck (2020) connects this state of union to the state of mindfulness and meditation, which have been shown to reduce stress and anxiety (Behan, 2020).

The majority of interviewees experienced physical improvements, while half of the interviewees specifically experienced a change in physical discomfort, often a form of pain in the body. The results of body-mind connection provide the first indication that the WHM

operates on a holistic basis and the resulting improvement of one's psychological condition could positively influence one's physical condition (Cloninger, 2007). Adding to this holistic view, cold exposure on a regular basis has shown to improve immune function (Worseck, 2020). Inflammations frequently cause symptoms from different diseases, such as multiple sclerosis and rheuma, and cold exposure has been shown to reduce symptoms of Asthma, Rheuma, and Fibromyalgie all at the same time (Worseck, 2020). Likewise, the interviewees suffered different kinds of pain and discomfort but all of them experienced a reduction or elimination of the above.

The current findings showed improvement of social interactions and the possibility of new friendships. Common experiences have shown to be a facilitator for social interaction (Thomas, 2018). Like most interviewees reported, they connected with people who also practice the WHM. Furthermore, a dynamic social interaction is complex and includes emotions, responses, actions, and reactions that vary depending on the individual's mental constitution (Summers, 2002). Since, the WHM has shown to reduce inflammation and improve overall health (Kox et al., 2014), allowing possible improvements in the interactive capacities in social interactions. The findings of the current study showed both experienced psychological and physical changes and interviewees reported that their improved social skills were partly a result of the improvements in general health.

The Perceived Value of the Wim Hof Method

Results of the third research question revealed that the WHM was valued in its simplicity and effectiveness. However, there were some interviewees who only practiced the cold exposure for example, without engaging in the rest of the method's activities. This implies that some interviewees might have not been as convinced of the WHM as others. As previously stated, there is not enough research on the WHM to clarify all aspects of its contribution to mental health, which may explain why some of the interviewees did not engage in all practices, but only those that immediately resonated with them. It has been

discussed how each single component of the WHM contributes to mental, and physical health (Worseck, 2020; Muzik, Reilly & Diwadkar, 2018; Behan, 2020). Choosing one component that served them specifically may have been the strategy used by some of the interviewees to achieve their objectives.

Some interviewees experienced or realized the possible risks of being exposed to extreme cold and/or doing breathing work, which may have made them feel unsafe for one of the practices. This insecurity could also be one reason why half of the sample recommended to practice with an instructor of a group. Some said that they could let go more in this setting, possibly feeling safer. Even though the WHM was not fully implemented by all interviewees, making it difficult to assess its impact on mental health, it can be stated that each interviewee found a way to practice the WHM to their own extent and in their own way. Finally, each interviewee was convinced of the individual health benefits they experienced and maintained their commitment.

Strengths and Limitations

The findings of the current qualitative interview study appear to supplement the findings of previously published quantitative studies that demonstrated the WHM's beneficial effects (Kox et al., 2014; Pickkers et al., 2012). A strength of this study is its initiation into the qualitative investigation of the psychological effects of the WHM. As the WHM appears to be a promising healing method that could benefit many people worldwide, more quantitative, and qualitative research on both the physical and psychological effects is required to attract more users and secure the method's efficacy and safety. Semi-structured interviews were used in the present study to gain an understanding of the topics which were deemed important by the users themselves (Longhurst, 2003). Because research into the psychological effects of the WHM is still in its early stages, semi-structured interviews appear to be useful in providing a broad spectrum of interviewee experiences, which can serve as a foundation for future research.

Before basing future studies on current research findings, it is critical to consider the limitations of the present study. While semi-structured interviews have advantages, they also have drawbacks. Semi-structured interview data collection and analysis take time (Adams, 2015), resulting in a small sample size, in this case, only eight participants. To benefit from the in-depth information expected from a semi-structured interview, the interviewee must be willing to open-up personally about the topic at hand, which may be more difficult when discussing mental health. As a result, the interviewer-interviewee dynamic may play a role, potentially leading to biased findings. In addition, the data was analysed by only one researcher. To avoid a subjectivity, it is recommended to have more researchers involved in the data analysis. Finally, the recruitment took place within a closed community of WHM practitioners. Because people who did not experience positive effects from practicing the WHM are less likely to be present in groups like these, the recruitment process was skewed.

Implications

Despite limitations, the findings of the current study provide information about possible positive effects of the WHM, and beyond. The results could be used as an inspiration for further research, since the WHM is still relatively new in the scientific world. Quantitative research may be useful for collecting data from a larger sample size and ensuring more objective data collection and analysis. For instance, randomized controlled trials could be made to investigate whether WHM contributes to psychological, physical, and social effects reported by the experimental group compared to a control group. Nonetheless, more qualitative research with larger sample sizes could also provide valuable information to lay the groundwork for future research. Future research could either replicate the current interview study, or focus on a single aspect of psychological effects, such as depression or anxiety.

So far, the WHM has been shown to have a potentially healing effect on a variety of health issues. More research into the method's ability to treat various diseases would be

beneficial before recommending it as a scientifically proven approach to treatment or as an additional practice. For instance, it should be investigated whether WHM is more or equally effective than other formal treatments like CBT, anti-depressants, EMDR. This could be especially beneficial for mental health and health practitioners in general, who could use the WHM findings as inspiration for treatment, because the results show how beneficial the method can be on an individual's health if used correctly.

Conclusion

The current study adds to the already existing claims about WHM being a beneficial practice for better health. Positive psychological, physical, and social effects were discovered, along with a high motivation to practice the WHM and a positive evaluation of the practice. The study's limitations should be considered for future research, but the findings could still serve as an inspiration for further studies and applications. A quantitative study should be followed up with randomized control trials to investigate psychological effects. As a result, further research into the WHM could lead to a more efficient healthcare system and, as a result, a healthier population.

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Appendices

Appendix 1 – Informed Consent

Informed Consent

The Title of the Study:

Reported Psychological Effects of the Wim Hof Method – An Interview Study.

The following research study is about psychological effects of practicing the Wim Hof Method. The study happens in the context of the researcher's master thesis. The BMS Ethics Committee of the University of Twente has reviewed and approved the research study. Any approval to participate in the study can be withdrawn anytime. Furthermore, questions can be asked throughout the study and anytime afterwards. It is possible to contact the researcher anytime for questions or withdrawal from the study. It is not required to provide any reasons. For further questions about your personal rights in the context of being a research participant, you can contact the Ethics Committee of the University of Twente (ethicscommittee-bms@utwente.nl).

The data collection is executed in the form of an interview. This interview is about your experience of practicing the Wim Hof Method (WHM). As a psychology student doing qualitative research, I am interested in hearing your personal experience and opinion. There are no rules in answering the questions. The interview will last about 20-30 minutes, nevertheless, there is flexibility in extending the time or shorting the time if your answers are leading this way. The interview's purpose is not about doing an intervention with you but to collect data about personal experience with the WHM. All of your answers are anonymous, voluntarily and confidential. Under your permission, the interview will be audio-recorded and transcribed afterwards. Both the audio-record and the transcription will be held by the researcher until the master's degree is attained. Finally, quotes from the transcript will be included in the research report.

I agree to voluntarily participate in this study.

Name of participant

Signature

Date

I have provided the participant with the necessary information and made sure that the information is understood completely.

Name of the researcher

Signature

Date

Appendix 2

Interview Schedule

General questions

1. How long/frequently have you been practicing the WHM?
2. How has practicing the Wim Hof Method been like for you so far?

Personal Motivation and Barriers

1. What motivated you to practice the Wim Hof Method? (Intrinsic; extrinsic)
2. Have there been times when you felt like stopping? If so, why? Did you keep going? If yes, how?
3. What personal strengths do you think have helped you make use of the Wim Hof Method? (what you're good at, personal qualities)
4. What things in your current life situation have made it harder for you to make use the WHM to deal with your problems?
5. What things about you do you think have made it harder for you to use the WHM to deal with your problems? (things about you as a person)
7. What things in your life situation have made it harder for you to use WHM to deal with your problems? (family, job, relationships, living arrangements)

Personal Changes

1. What positive changes, if any, have you noticed in yourself since you started practicing the Wim Hof Method? (Example: possible physical, psychological, spiritual, social changes)
2. What negative changes, if any, have you noticed in yourself since you started practicing the Wim Hof Method?
3. Is there anything that you wanted to change that hasn't happened since you started practicing the Wim Hof Method?

Personal Evaluation of the Methods Value

4. How likely do you think the change would have been if you hadn't practiced the Wim Hof Method?
5. How important or significant do you personally consider this change to be?
6. In general, what do you think has caused the various changes you described? In other words, what do you think might have brought them about?
(Including things both outside of practicing the WHM and within practicing the WHM)
7. How did your experience each component of the WHM? (Breathing, Mindfulness, Cold exposure)
8. Were there things about practicing the Wim Hof Method which were difficult or painful but still OK or perhaps helpful? What were they?
9. Can you sum up what has been helpful about the WHM so far? Please give examples. (For example, general aspects, specific events)
10. What kinds of things about the WHM have been hindering, unhelpful, negative or disappointing for you? (For example, general aspects. specific events)

11. Would you recommend the Wim Hof Method to someone else? Please explain.

Appendix 3

Coding Scheme

Table 1

1. Research question: What motivated people in starting and practicing the WHM?

| Themes | Codes | Quotes |
|--------------------------|--------------------------------------|--|
| Task-Oriented Motivation | Oriented Towards Personal Challenges | “(…) I like pushing my body obviously pushing it within my own comfort zone, but I like to see where it will take me (…)” |
| | Oriented Towards Something New | “I like to try out new things anyway, so I thought you'd try it out and see what it's like, yep, and I thought it was really good.” |
| Health Benefits | Psychological Benefits | “(…) to me that was sort of something I was looking for as well, just something to help me connect to myself a little bit better, and maintain, yeah...a bit more of a balanced sort of mood, ehm (…)” |
| | Physical Benefits | “(…) so I had a busy phase at work, had also put on a bit of weight, and thought: I need to do something for my body (…)”. |
| External Motivator | Teaching the WHM to Others | “I'm thinking of doing the |

| | | |
|-----------------|------------------------------------|---|
| | | trainer with a friend of mine at some point, because we're both so convinced that we'd like to teach it to other people too.” |
| | Seeing the WHM as a Higher Mission | “I personally believe that it's much more about our earth, that it's much more about nature, that we understand much more that we actually came out of nature (...)” |
| Physical Change | Improved Physical Performance | “...definitive a higher performance, faster physical recovery, a way to relax quickly and effectively.” |
| | Decrease of Physical Complaints | “So, I had back pain, since I went into the ice water it is also so that the back pain has gone away completely. Yes, and the back pain was not a little bit, but it was more extreme.” |
| | Weight Loss | “Ehm, what else, which is not so important to me personally, what else I noticed is that you lose weight with it.” |

| | | |
|-----------------------|----------------|---|
| Psychological Changes | Reduced Stress | “(…) I can remember a situation where...I had to stop |
|-----------------------|----------------|---|

| | | |
|----------------|-------------------------------------|--|
| | | myself and realise for a moment: Hey, you haven't felt stress for a long time.” |
| | Reduced Anxiety | “In fact, competition anxiety was gone, I mean zero.” |
| | Improved Confidence | “the breathwork in particular certainly made my mind strong...I feel like a very strong person now, whereas before, I have always lacked self-confidence really through my whole life” |
| | Body-Mind Connection | “(..) |
| | Releasing/Letting Go | “I have also experienced this in many seminars with myself but also with others. Somehow, some blockage is released and then it flows (...)” |
| Social Changes | New Social Contacts and Friendships | “...so, it has opened up new friendships that I would not have had, have I had not started the method...so...they are like my second family now.” |
| | Improved Quality of Social Contact | “Of course, that has an impact on social interaction, |

| | | |
|---|--|--|
| | | <p>how do I deal with others do you lose your temper right away or are you just relaxed...”</p> |
| <p>Positive Evaluation of the WHM</p> | <p>Simplicity and effectiveness of the WHM</p> | <p>“And what I find fascinating about the method is that in the beginning it is very easy to learn, quick and dirty, and then very quickly you can continue to develop and go deeper.”</p> |
| | <p>Improved experience in a group and/or with an instructor.</p> | <p>“(...) when you let yourself be guided by an instructor and go in, it's something else than when I do it at home, at home it's routine by now, but when you completely let yourself fall in and follow the voice, that's been the absolute kick.”</p> |
| <p>Risks of practicing the WHM</p> | <p>Risks of Breathing Exercises</p> | <p>“With the breathing, I have also tried that, but they also write that it can lead to you becoming unconscious, for example. And I'm so afraid of that”</p> |
| | <p>Risks of Cold Exposure</p> | <p>“(...) then the phase when I developed a cold allergy, I had a more split relationship with it.</p> |
| <p>Practicing only the cold exposure as part of the WHM</p> | | <p>“What I don't do is breathing,</p> |

which is an essential part of
it, I'd say, because I have a
hard time with it, I'm
impatient.
