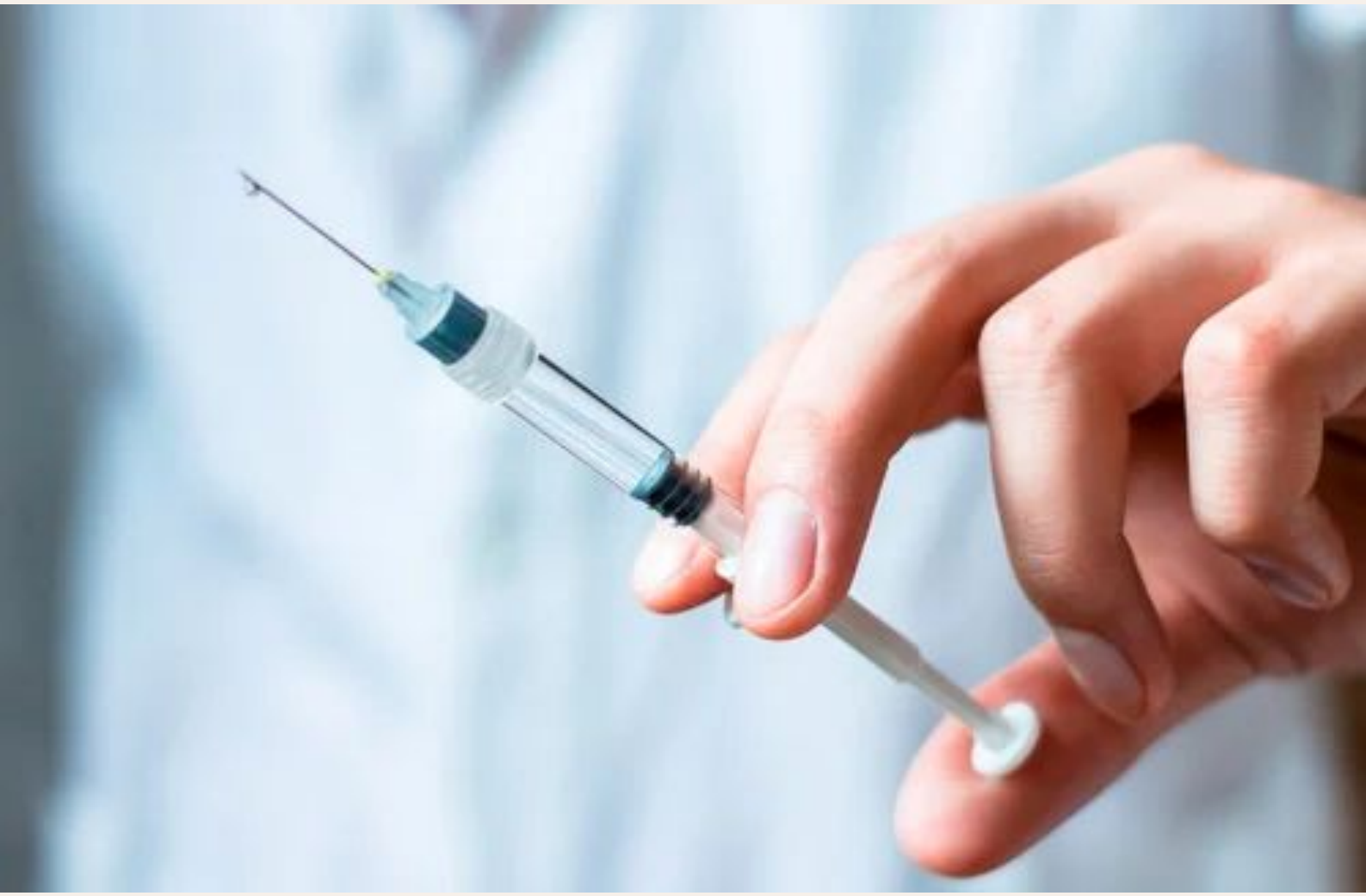
Amelia by XRHealth Clinical Case

Fear of Needles (Remote VR)



Patient

Martha, a 26-year-old woman.

At the time of the evaluation she is living with her parents at their home in Barcelona. She is an only child. She finished her studies in infant education in 2018 and is currently unemployed. She is studying to take the civil servant teaching examination.

She has been in a relationship for four years.

She is a socially active person.

She claims to have never taken a blood test.

Problem description: Martha refers to having an **exaggerated and irrational fear of injections** in particular, although she said that nothing related to medicine, such as doctors, hospitals, health centers, etc. is to her liking. Now, with the fear of being able to catch Covid-19, the problem arises that if it happens, or there is a suspicion of it, she will not be able to have the tests done, and this could also harm her parents with whom she lives.

Her **main objective** was to lose that fear and if it was the case, to have no problems in getting the test done, as well as to be able to have a routine check-up in which she could include a blood test, and to be able to attend all the medical appointments, without fear of being asked for a test.

Evaluation

The following instruments were used for the evaluation of the case:

- **Semi-structured interview** (Evaluation of the presence or absence of vasovagal syncope).
- Biographical history, report filled in by Martha, in which information is collected both on the problem, origin and maintenance, as well as other socio-economic aspects, and information on the motivation, interest and expectations of the therapy.
- **Cognitive Style Questionnaire** (Mansilla-Cabanillas, 2003), evaluates the degree of agreement with dysfunctional beliefs described by Ellis, by means of a 5-point scale, in which 1 is "completely disagree" and 5 "completely agree".
- **Fear Questionnaire** (FSS-III) (Wolpe J. and Lang P.J., 1964. Spanish adaptation: J.A. Carrobles, 1986), evaluates the intensity of irrational fear in the face of different stimuli. The six dimensions measured are: negative social evaluation, animal phobia, apprehension of suffering, obsessive tendency, claustrophobia, sensitivity to violence and social interaction.
- **The Inventory of Anxiety Situations and Responses** (ISRA) (Cano-Vindel, A. and Miguel-Tobal, J.J., 1999), evaluates the general level of anxiety, the three separate response systems (cognitive, physiological and motor) as well as four situational areas of anxiety (assessment anxiety, phobic situations, daily life situations and interpersonal relationship).

Evaluation

- **Evaluation by means of virtual reality (behavioural avoidance test):**
  - Watching Health News on TV
  - Leaving home for the hospital
  - Driving to the hospital by taxi/metro
  - In a health center waiting room
  - In a health center extraction room
  - View an extraction

Evaluation

During the interviews Martha demonstrated good **social skills**. Her high motivation for therapy was remarkable. For all these reasons, the **therapeutic alliance** was easily established.

Martha describes herself as a healthy person, **she has not had any serious incidents** in which she had to be operated on, nor any illness that would make her go to the hospital. For this reason, too, it has been **easy to avoid** everything in this field: hospitals, needles, blood, lines, etc.

In her family only her mother has some apprehension about needles and injections, and although she verbalizes it, it has not prevented her from getting tested when her doctor has required it.

She did not seem to understand the cause of her fear. However, she admits that in her childhood they always made it very easy for her not to have a bad time. Her pediatrician thought that it was not necessary to expose Martha to something she did not like so he never required her to have blood tests.

She recalled her mother's fear **"although she is not as afraid as I am, I have always seen that she did not like anything**". On the other hand she comments, **"it has never happened to me, but just thinking about it, I have the feeling that if I have a needle jab I will faint"**.

Martha had never received psychological therapy, neither for this nor for any other problem. In the end it was her partner who helped her make the decision to go to the psychologist.

Objectives

According to the comprehensive evaluation conducted with Martha, it was found that treatment goals should be **focused on three points**:

1. Firstly, to **control the anxiety generated, in the presence or anticipation of the feared stimuli.** For this purpose, the technique of **diaphragmatic or deep breathing** was used, due to its simplicity, speed of learning and ease of application in any situation. In this case it was not necessary, but if we had detected the presence of **vasovagal syncopes** the training would have focused on **stress applied** prior to gradual exposure.
2. Secondly, to be able to **extinguish the anxiety generated by the injections**, and therefore, to be able to go to the doctor when needed, and to be able to have a blood test. We opted for **gradual exposure with response prevention**, accompanied by the use of **self-instructions** and **objective description**.
3. Finally, **eliminate irrational ideas** about the consequences of injections and **modify catastrophic anticipations** by rational and **adaptive thinking** through cognitive restructuring.

Development

A total of **6 sessions** were held, spread over 4 weeks. The first session and part of the second focused on evaluation.

During the **first session**, the aim was to discover all the relevant elements of the origin and maintenance of Martha's phobia, as well as establishing a good therapeutic alliance. To do this, among other factors, we analysed the thoughts that Martha had behind her fear, and which could favour its maintenance.

In addition, the different **questionnaires** and evaluation tools indicated above were sent to her to be completed in the next session.

In the **second session, biographical history and questionnaires were reviewed.** Once everything was analyzed and explained to Martha, a **psychoeducation program** was used in which it was previously explained how the anxiety curve worked (Yerkes-Dodson's Law, 1972) and what the **differences were between adaptive anxiety and pathological anxiety**. In addition, we used the **psychoeducational videos in VR format**. The idea was that she could see the difference between fear and phobia, and the fear of fainting.

The videos used were; "Why a pathological fear is maintained", and "Fear of fainting".

Then we proceeded to establish the **hierarchy of phobic items** for fear of needles (self-report hierarchy using VR "waiting room and extraction room"). .

This same session was used to teach Marta about **diaphragmatic breathing**, how it works and its functionality in therapy. To do this we used the **underwater diaphragmatic breathing environment,** where she was given instructions to practice it at home, using the **Amelia by XRHealth for Smartphone** application. She was asked to repeat it twice a day, doing so at specific times of the day, and that she write it down or set an alarm to make sure she did it.

Development

From the **third to the fifth session**, we dedicated ourselves to doing the **exposures**, as well as working to increase the repertoire of different therapeutic strategies like; **self-instructions, diaphragmatic breathing, jacobson, graduated exposure with response prevention and cognitive restructuring**. In addition, after the third session she was asked to watch videos of blood tests to desensitize herself as homework.

The exposures were progressive based on the **hierarchy** that she established. We started directly as a patient, in the waiting room, once we decreased anxiety at the idea of the extraction with breathing and self-instructions (subjective anxiety of 3 or less), we could already enter the extraction room, although no event was introduced. The idea of this session was that she would not have the sensation of fainting at the mere **thought** of having blood drawn.

Already in the **fourth session**, we reviewed concepts and she commented that she was able to watch videos without too much difficulty, but that they still caused her **"distress"**. We continued with the exposures, but increasing the difficulty, introducing the event of **"pricking the finger"**. She didn't feel faint, but if she perceived an increase of anxiety (SUD 6). We repeated up to 3 times the same event until Martha expressed a reduction of that anxiety (SUD 2).

As **homework**, it was proposed that she go to a pharmacy to do an en-vivo exposure, specifically for a glucose test (finger prick). Her partner was given instructions so that he could accompany her playing the role of co-therapist.

Development

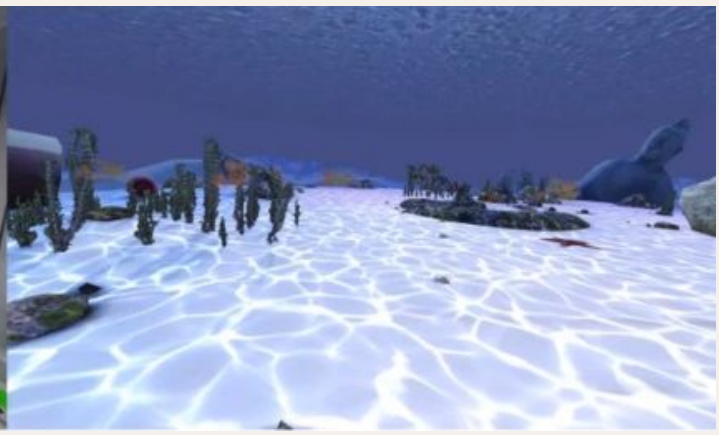
In the **fifth and sixth sessions** we continued working normally, but already doing the exposures that seemed more **unpleasant** (injection and strong extraction). If the session had been in the consulting room, we would have used a real rubber band to put it on her arm to increase the sense of presence. We could clearly see that she did not avoid looking and there was no presence of dizziness sensations, but she did comment that she still had some **"anxiety" or "repulsion"**.

Cognitive restructuring was used transversely throughout the treatment to modify the irrational ideas that were presented.

Clarifications regarding the exposures: Martha had virtual reality glasses to use with her phone, so it was really easy to work as if we were in consultation. Even so, for the psycho-educational videos I asked her to watch them in 2D mode. Although everything else was done in virtual reality.

Martha did the sessions from her bedroom, informing her parents beforehand in order to generate as little noise as possible at home. In this way we were able to work the 6 sessions quite easily.

As for the homework, she did the breathing exercises at the beginning with virtual reality, then, once she mastered the technique she did it by herself (from the third session onwards).



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