**The Effect of Apathy on Near-Point Stress**

**Introduction**

The case report demonstrates that near-point stress may induce myopia. Orthoculogy (or ortho C) was implemented with the intention not just to control the myopia progression but also to reduce it. Ortho C is an improved version of ortho K. The lens is less flat by comparison, and it is worn for just a few minutes (Yee, 2011, 2012, 2013a, 2013b, 2014, 2020, 2022, 2024).

The participant in this case, who I will call Participant A, was among several participants that took part in my treatment of pediatric myopia by means of ortho C. I noticed that several adolescent participants with severe myopia had difficulty maintaining the improvement in visual acuity. They displayed habits similar to Participant A.

She continued to rely on her glasses for the close and intermediate distance after being told that it can induce a relapse. Although the glasses had a reduced prescription, she can still see 20/25 on the Snellen chart with them. It allowed her to see the blackboard at school. However, when performing close work with that power, it can induce near-point stress by simulating condition of looking at an object very close for an extended period.

Although the participant experienced a relapse several times, she still did not learn from the experience and still engages in the habit after I corrected her relapse by performing the intervention again. The participant’s apathy may be a form of situational depression. Her mood was assessed as being low in certain areas in her quality of life. Although her self-esteem was not affected, it was not able to override her apathy. It was not a case of being indifferent in general. Apathy due to situational depression is selective.

**Literature Review**

After experiencing a traumatic event such as the death of a loved one or being exposed to certain types of stressors at home or at school, that individual is susceptible to situational depression. It is different from clinical depression which is a more enduring form. One of the symptoms of situational depression is difficulty carrying out tasks (American Psychiatric Association, 2022).

Having such a mood does not offset the ability of ortho C to treat the myopia, but it tends to interfere with the ability of high myopes to maintain the improvement in visual acuity. The tendency to continue engaging in the habit that induces near-point stress can cause a relapse. The apathy reinforces the habit (Yee, 2020, 2022).

The habit in question is the reliance on a pair of prescription glasses for all ocular ranges. It was designed for the distance. Wearing them for close work can induce near-point stress by simulating a condition of looking at an object very close for an extended period. The minus lens diverges the light more, and the crystalline lens of the eye has to bulge more to converge the rays to bring an object into focus. The eye tends to elongate to alleviate the tension placed on the ciliary muscle (the muscle that control the lens); but once that takes place, myopia tends to set in (Yee, 2020, 2022).

There is the possibility of moderating certain moods if self-esteem is still intact. Self-esteem plays an important part in overcoming performance anxiety. Dodgson and Wood (1998) gave an example of how having a low self-esteem can induce performance anxiety where one would be judged by the outcome of the performance. If one initially has a low self-esteem after experience a previous failure, it is harder to retrieve areas of strength to offset unfavourable thoughts. Instead, one tends to draw on thoughts in the domain where one failed. These unfavourable thoughts tend to cause one to fail again. Similar to an athlete who failed once during a routine, there is the tendency to fail again during the same routine if his or her self-esteem was low to begin with.

**Aim of The Study**

The aim of the present case report is to demonstrate that near-point stress can promote progressive myopia. It also demonstrates the extent apathy can have on reinforcing the habit of continuing to engage in near-point stress.

**Hypotheses**

First hypothesis: Near-point stress can contribute to progressive myopia. The offsetting impact of a minus lens worn for close-up work is a contributing factor for progressive myopia by inducing near-point stress.

Second hypothesis: The presence of apathy is one of the symptoms of situational depression. It may offset the ability to make the necessary changes to maintain an improvement in visual health. Even if self-esteem is high, apathy may still override the ability to make those changes. The importance of preserving the improved visual health may not be sufficient as a motivating factor.

**Data Collection Tools**

**Wellness Questionnaires**

I adopted the Kidscreen-27 Quality of Life assessment tools for children and adolescents. It offers a hint of the presence of trauma. It is a shorter version of the Kidscreen-52 Quality of Life assessment, and it is intended for children and adolescents. It has five dimensions resulted: Physical Well-Being (5 items), Psychological Well-Being (7 items), Autonomy and Parents (7 items), Peers and Social Support (4 items), and School Environment (4 items).

The Hare Self-Esteem Scale. It is intended for youths 10 to 18 years of age. I chose the Hare Self-Esteem assessment because it revisits some of the dimensions of the Kidscreen 27 from the perspective of the participant’s self-esteem. It examines the youth’s self-esteem development in the following domains: school, peers, and home.

The Kidscreen assessment asks how the participants feel. For example, they would rank their degree of happiness at school—whether it is slightly, moderate, or very happy. The Hare Self-Esteem would probe deeper as to why they are not happy at school. They may feel worthless or unimportant, etc. The Kidscreen Quality of Life assessment inquire about the family—about how the parents treated the participants. The Hare Self-Esteem assessment asks about what the participants thought of them and how the participants felt as a result.

**Interview**

I conducted a semi-structured interview to solicit information about the participant’s history. In addition to the conventional questions about her ocular and medical history, I also asked about her mental health. The interview is designed to pick up other possible variables not revealed by the assessment questionnaires. It allows participants to describe some of the symptoms more in-depth, and it allows for a discussion of those symptoms in relation to the past. It complements the data collected from the visual acuity tests.

I would only ask some predetermined questions. The rest of the questions were not planned in advance. I would ask if they had experienced any trauma at home or at school, if they had experienced anxiety or depression in the past, or if they had any negative moods. I would ask the parents the same questions.

**Visual Acuity Chart**

I did not use a phropter. I found that instrument myopia may have a negative impact on some pediatric participants (Yee, 2020). I resort to a visual acuity eye chart instead with the following measurements: 20/200, 20/120, 20/100, 20/80, 20/60, 20/50/ 20/40/ 20/30/ 20/25, 20/20, 20/15.

**Data Collection Procedure**

To establish a benchmark during the first visit, a visual acuity test (v/a/ test) was conducted before the participant performed the intervention. Then another v/a test was conducted after the intervention to determine the improvement in vision.

During each follow-up visit, the participant’s v/a was tested before applying the intervention. It establishes the degree of retention in improvement since the last visit. I again tested their visual acuity after the intervention. It establishes the degree of further improvement.

During the first visit, Participant A answered the mental health questionnaires. After the final visit, the 9th visit, she answered the same mental health questionnaires again.

**Profile**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Gender | Age | Degree of Myopia | Quality of Life assessment | Self-Esteem  Assessment | History of chronic depression or anxiety |
| F | 17 | Severe | Low in the area of mood and school | Above Average | No |

Participant A’s prescription prior to the treatment was severe; right eye: -7.25 D, left eye: -7.00 D. I had improved her visual acuity to the extent where she was able to comfortably rely on a pair of -4.00 D (diopter) glasses. Her visual acuity with those glasses was 20/25 (or line 7 on the Snellen chart). It was more than adequate to allow here to see the blackboard. The normal visual acuity is 20/20 (or line 8 on the Snellen chart). But she was unable to remove those glasses at home or wear a weaker prescription.

She was still in high school. The only way to have her wean off the glasses completely was to encourage her to remove them gradually in the safety of her home. But she was unable to perform that task without supervision.

She scored low in the dimension of mood in the Kidscreen-27 Quality of Life assessment. It was 14/35. She also ranked low in school. It was 4/10. She ranked average in the dimension of Friends. She was above average in the other dimensions. Her low score was not likely related to a low self-esteem. Her Hare Self Esteem assessment was above average.

Her father mentioned that he and his wife were separated. Their son and daughter spend a week with her mother and a week with him. She is frustrated with this arrangement, but she refuses to live with just one parent. She done this for eight years. She was subjected to different house rules.

**Outcome of Wellness Questionnaires**

Her scores on the different domains in the Kidscreen-27 Quality of Life assessment: Physical Well-Being: 20/25. Psychological Well-Being (Mood): 14/35. Family and Free Time: 25/35. Friends: 10/20. School: 4/10. Learning: 9/10.

Her scores on the different domains in the Hare Self Esteem assessment: School: 33/40. Peer: 34/40. Home: 32/40.

**Follow-up Visits**

**First Visit**

Before applying the first drill, the following are the visual acuity reading with the different glasses during the first visit:

With the -5.75 D glasses:

Both eyes: ½ of 20/30 line (read half of the 20/30 line)

With -4.75 D glasses:

Both eyes: 20/50 -1 (read the 20/50 line except for one letter)

After applying the first drill, the following are the visual acuity reading with the above glasses:

With -5.75 D glasses:

Both eyes: ½ of 20/20 (read half of the 20/20 line. An improvement of 1 line)

With -4.75 D glasses:

Both eyes: 20/30 (read all of the 20/30 line. An improvement of 2 lines)

According to a predetermined calculation, I gave her with a pair of computer glasses with a power of -4.00 D. Her visual acuity with those glasses after the intervention was 20/40.

**Second Visit (a week after the last visit)**

Before applying the first drill, the following are the visual acuity reading with the different glasses:

With the -4.75 glasses

Both eyes: 20/40 (a relapse of 1 line which is within the normal range of fluctuation)

With the -4.00 glasses

Both eyes: 20/60 (a relapse of 2 lines which may be outside the normal range of fluctuation for a pair of computer glasses)

After applying the first drill, the following are the visual acuity reading with the above glasses:

With the -4.75 D glasses

Both eyes: ½ 20/20 line (an improvement of 3 lines)

With the -4.00 D glasses

Both eyes: 20/40 (an improvement of 2 lines)

**Third Visit (a month after the last visit)**

Before applying the first drill, the following are the visual acuity reading with the following glasses:

With the -4.00 D glasses

Both eyes: 20/60 (a relapse of 2 lines from the last visit)

After applying the first drill, the following are the visual acuity reading with the following glasses and contact lenses:

With the -4.00 D glasses

Both eyes: 20/30 (an improvement of 3 lines from the “before” reading)

With a pair of -3.00 D contact lenses

Both eyes: 20/40

With a pair of -3.50 D contact lenses

Both eyes: 20/25

**Fourth Visit (a week after the last visit)**

Before applying the first drill, the following are the visual acuity reading with the following glasses and contact lenses:

With the -4.00 D glasses

Both eyes: ½ of 20/50 line (a relapse of 2 lines from the last visit—after performing the drill)

With a pair of -3.50 contact lenses

Both eyes: 20/50 (a relapse of 3 lines from the last visit—after performing the drill)

After applying the first drill, the following are the visual acuity reading with the following contact lenses:

With a pair of -3.50 contact lenses

Both eyes: ½ of 20/30 line (an improvement of 2 lines from the “before” reading)

**Fifth Visit (a week after the last visit)**

I wanted to improve her visual acuity further and had her perform the second drill. Before applying the second drill, the following are the visual acuity reading with the following glasses:

With the -4.00 D glasses

Both eyes: 20/40 (an improvement of 1 line from the last visit—prior to performing the drill)

After applying the second drill, the following are the visual acuity reading with the following glasses:

With the -4.00 D glasses

Both eyes: 20/25 (an improvement of 2 lines from the “before” reading)

**Sixth Visit (two weeks after the last visit)**

Her father reported online that she cannot see the board at school even when sitting in the front row while wearing the -4.00 D glasses. I gave him instructions on what to do. She performed the second drill and she said that she could see better with the -4.00 D glasses afterwards.

**Seventh Visit (a week after the last visit)**

I was surprise to find that she was not wearing her glasses when she came to see me. She also acquired the habit of not wearing her glasses when she was on her cell phone for about 15 minutes.

I was interested in her retention. I checked her visual acuity without performing any drills:

With the -4.00 D glasses

Both eyes: 10/15

Right eye: 10/25

Left eye: 10/25

**Eighth Visit (three weeks after the last visit)**

Her father told me that he could not supervise her all the time. When she was visiting his exwife, he is not sure if she adhered to my instructions,

With the -4.75 D glasses, she could only see the following on the Snellen chart:

Both eyes: 20/50

It was a severe relapse. It was equivalent to what she could see during the first visit. Her improved visual acuity since then was erased.

**Ninth Visit**

Her father mentioned that she incurred another relapse

With the -4.75 D glasses, she could only see the following on the Snellen chart:

Both eyes: 20/100 (line 3)

The relapse was more severe than the previous visit.

**Data Analysis**

**Elaboration on the Visits**

Participant A had a relapse during the second visit. She was reluctant to wear her weaker prescription glasses for the midrange (computer range) after I reduced her myopia. She continued to wear her stronger glasses when she was going to school, when she was in the classroom, or when she was home. She was not able to remove her glasses when she was at home despite an improvement in her visual acuity and when 20/20 vision was not required.

The ability to improve her vision after the relapse was an indication of the flexibility of the eyes of children and adolescents. In cases of adults, atrophy would have set in due to wearing a stronger pair of prescription glasses all the time at home; and it would be difficult to reset their vision afterwards. Adults would usually have to immediately break the habit of wearing a pair of full prescription glasses immediately for the near and intermediate range.

She had another relapse during the third visit. I had to change my approach. Besides telling her not to wear the stronger glasses at the near and midrange, I explained to her what happens when she wears a minus lens in those ranges. I showed her a diagram to illustrate that the focal point would end up behind the retina, and the eyeball would have to elongate more to bring it into focus. When she had another relapse during the fourth visit, I added that if it was necessary to wear a pair of glasses when she is in front of a computer screen, her -2.50 D glasses would be more appropriate than the -5.75 D glasses. I also gave her some relaxation drills.

During the fifth visit, she had an improvement of 1 line on the eye chart with the -4.00 D glasses. I assumed that she was adhering to my instructions. I moved on to the next step in the treatment and had her perform the second drill. It improved her vision to the extent that she could see 20/25 with the -4.00 D glasses. It was 1 line away from 20/20 which is considered normal visual acuity. In order to maintain the improvement, I asked her to see if she can make out the 12 pitch font sentences on the 14 inches screen of my laptop. She could read them at about 14 to 16 inches away. She agreed to try to read her computer screen without glasses, and she said she would make the letters larger.

But she had a relapse on the sixth visit. She still adhered to the -4.00 D glasses when she was in front of the computer. I again reminded her not to wear any glasses at home. I explained that at home, she would mainly be exposed to objects less than 20 feet away. Therefore, with the -4.00 D glasses on is comparable to working in the midrange with a minus lens; the focal point would be behind the retina. The eye would have to elongate or the lens would have to bulge more to bring a distant object into focus. I asked her father to supervise her until the new habit is established.

When she came to see me on the seventh visit a week later, I was surprise to find that she was not wearing her glasses. She also acquired the habit of not wearing her glasses when she was on her cell phone for an extended period. I made her a pair of -3.50 D glasses. I told her that she could wear those to school. Then when she is in the classroom, she can switch over to the -4.00 D glasses in case she has to see the blackboard. She found it interesting when she compared the thickness of her original -7.25 D lens to the -3.50 D lens. She told me that she was not wearing any glasses at home. Her father still had to remind her now and then.

She has a relapse on the eighth visit. She continues to wear the -4.75 glasses at home and when working in front of the computer. To break the habit of constantly resorting to her -4.75 glasses, I suggested that she wear a pair of -2.00 D or -2.50 D soft contact lenses instead. It was during the summer, and she did not need perfect vision for school.

The relapse during the ninth visit was the worse. Although she wore the contact lenses outside the home, she continued to wear the -4.75 glasses at home. With the -4.75 D glasses, she could only see the 20/100 line on the Snellen chart (line 3). I was a relapse of 5 lines compared to what she could see during the second visit; she could see ½ of the 20/20 line (line 8).

**Discussion**

Participant A was exposed to ongoing trauma in the family for eight years. When faced with certain tasks, it may induce a form of apathy related to situational depression. In her case, the phenomenon is displayed as being apathic to my initial instructions and reasons for not wearing any visual aid when performing work in the near and intermediate range.

She scored low in some areas of the quality of life assessment, but her self-esteem assessment was above average. Perhaps her high self-esteem allowed her to function in most areas in her quality of life. But it was not effective in dealing with apathy associated with certain tasks. Although those tasks may not be deemed as stressful, diligence is required. To some people, that may be overwhelming.

I had to address her mood in addition to attempting to reducing her myopia. By doing that, I realized that she cannot pursue more than one goal at a time. If she is preparing for an exam, for example, she would tend to focus more on that task than on others deemed to be less important. At present, after over a dozen follow-ups, she seemed to acquire sufficient knowledge from her experiences to tell me that she intends to continue with ortho C; but she wants to postpone the treatment until she completes one of her exams.

The implication of the relapses experienced by Participant A is that it challenges the notion that there is no harm in wearing a minus lens for the near and intermediate ranges. Even if the glasses were undercorrected for the distance, it can still be overcorrected for close up work. It can induce near-point stress. The higher the myopia, the higher the degree of near-point stress; and the risk of forcing the myopia to become worse.

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