

Study on the Experience of Tertiary Student Pianists with Playing-related Musculoskeletal Disorder (PRMD) in Chengdu, China: From the Student Pianists' Perspective

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Abstract

Via a multi-case study, this study investigated the experiences of student pianists with playing-related musculoskeletal disorder (PRMD) and the influence of PRMD on them, using transcendental phenomenology as a philosophical lens. This study makes an effort to make up for the lack of research on student pianists in earlier works of literature and to present the views of young pianists on performing arts medicine. Selective sampling was used to choose the twelve student pianists from Chengdu, China's higher education institutions, and semi-structured interviews were used to gather the data. Each participant felt very strongly about their identity as a pianist. Some of them believed that the barriers and limitations imposed by PRMD led to uncertainty and even a loss of confidence. The student pianists' performance level, mental health, way of life, and future plans were all significantly influenced by PRMD. On the plus side, most participants discovered how to deal with PRMD's negative influences and took the initiative to share their knowledge of effective prevention and treatment methods with others.

Keywords: Playing-Related Musculoskeletal Disorders (PRMDs), Student Pianists, Experience, Influence, Transcendental Phenomenology

Introduction

Playing instrumental music was not associated with any danger or health risks for a long time. However, it was not until 1986, when Alice Bronfenbrenner launched the first journal *Medical Problems of Performing Artists (MPPA)*, that the public realised that playing an instrument

could cause physical pain and injury (Pappa, 2019). In 1997, Zaza & Farewell (1997) first coined the term "playing-related musculoskeletal disorder (PRMD)" and defined it as "pain, weakness, numbness, tingling or other symptoms that interfere with the ability to play the instrument at the level you are accustomed" (Zaza, 1998).

Dillinger (1997); Zaza (1998) were the first scholars to pay attention to the relevant experiences of musicians. They investigated the PRMD-related experiences of classical musicians and orchestral musicians with chronic diseases. After that, Park et al (2017) began to pay attention to the PRMD experience of tertiary music students and conducted relevant studies (Salonen, 2018; Steemers et al., 2020; Austen, 2020; Cruder, 2023; Park, 2017). However, these studies were relatively few and not comprehensive enough for student pianists, especially Chinese student pianists. Student pianists carry the future of the world's development of piano performance art. Due to their lack of experience and influence, they were vulnerable and overlooked (McCready et al., 2007; Gembris et al., 2020; Cruder et al., 2019). Therefore, studying this specific region of China and this specific group of student pianists is significant for scientifically understanding and effectively solving their PRMD.

Extensive literature has shown that most musicians experienced transient or permanent PRMD during their careers, with prevalence rates ranging from 26% to 93% for pianists (Rotter et al., 2020; Ryan et al., 2021). Prevalence among professional conservatory students ranged from 43% to 63% Gembris et al (2020); Stanhope et al (2019); Portnoy et al (2022), including piano students. With the development of performing arts medicine, more and more researchers have begun to study PRMD in musicians and made significant achievements (Cruder et al., 2020). However, most of the current studies on PRMD focused on prevalence, risk factors, and preventive and treatment methods of PRMD; fewer studies explored the musicians' experience, and even less focused on pianists (Cygańska et al., 2020; Cruder et al., 2019).

The value of studying musicians' experiences of PRMD is undeniable. Past literature believed that it could provide an insider's perspective so that the public could understand the experiences of musicians' injuries and give them more understanding and support (Matei & Ginsborg, 2022; Steemers et al., 2022). It is also of great benefit for healthcare workers to be aware of musicians' honest thoughts and needs to provide them with better treatment (Salonen, 2018; Villas et al., 2020; Junkin & Janelle, 2019). This study involved student pianists with PRMD-related experiences in higher education institutions in Chengdu, China, as the research participants. Through student pianists' descriptions of their condition, this study explored the participants' experiences related to PRMD from their perspective and investigated the Influence of these experiences on their daily lives and careers, with the aim of providing an inside view of the experience of a young pianist in this field.

Methodology

This research was a multi-case study using the transcendental phenomenology of Moustakas (1994) as a lens. This study did not attempt to explain universal truths related to PRMD. Instead, it explored the experiences and thoughts of pianists from their subjective point of view, as well as the effects that PRMD brought to them, in a highly consistent way with Moustaka's (1994) fundamental principles of transcendental phenomenology. This study revealed the experiences of student pianists related to PRMD and how these experiences affected them through texture and structural descriptions and revealed their nature through phenomena (Moustaka, 1994).

Five textural themes related to the experiences of student pianists and five textural themes related to the influences of PRMD on student pianists emerged in this study. The structural themes come from the seven universal structure of existences derived from phenomenology and existentialism and is also a secondary analysis of the textural themes. Finally, combining textural and structural themes reveals the essence and meaning of student pianists' experiences related to PRMD. Figure 1 shows the conceptual framework of this study.

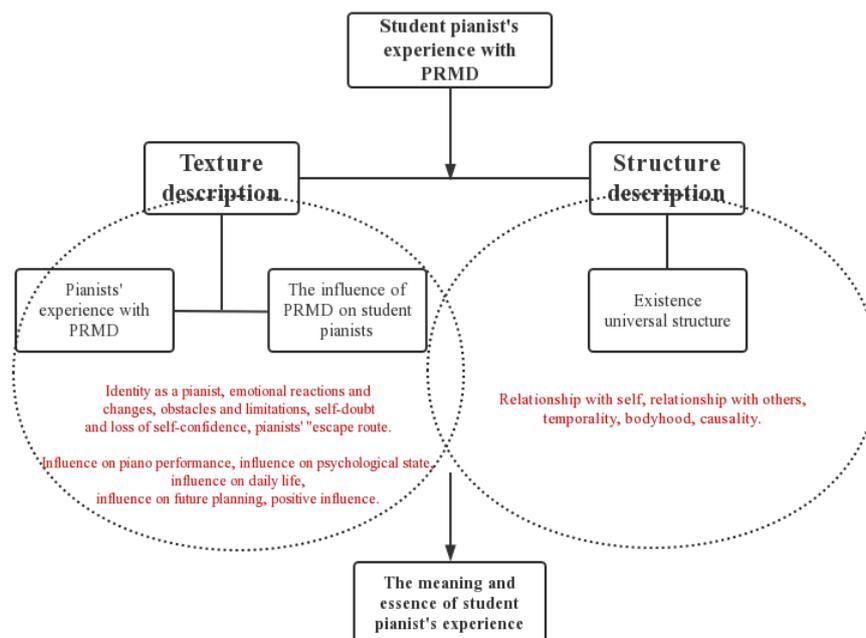


Figure 1 *Conceptual Framework of the Study (adapted from Cilesiz (2006))*

Participants and Participant Recruitment

Participants were recruited using a targeted sampling strategy. The researcher identified potential participants through a preliminary questionnaire with the help of piano instructors at various higher education institutions in Chengdu, China. Participants were selected according to specific criteria, which included having an outstanding PRMD-related experience, having PRMD at a severity level of 3 or above (self-assessed according to Fry's (1986) approach), having lived and studied in Chengdu for a long time (at least two years), having received appropriate treatment, and being willing to discuss their PRMD-related experience. After excluding those who did not meet the research purpose or were unwilling to participate in interviews, 12 student pianists were selected to participate in one-on-one in-depth interviews. A total of seven colleges and universities in Chengdu offer piano majors, including professional conservatory of music, comprehensive universities and vocational universities. To ensure the data richness as far as possible under the premise of a small sample size, at least one piano student from each university participated in this study. Table 1 shows the demographic information of this study.

Table 1

Demographic Information

Number of participants	12 student pianists
Age	18-26 years
Educational background	8 undergraduates 4 postgraduate students
Years of piano learning	4-21 years
Age to start learning piano	4-17 years old

Data Collection

Semi-structured interviews were used for data collection in this study. The researcher conducted a pilot study with five student pianists before the formal interview and finalized the formal interview guidelines based on their feedback (As shown in Appendix 1).

Interviews were usually long and in-depth, depending on the nature of phenomenology and the case study (McCready et al., 2007). In this study, the in-depth interview model of Seidman (2006) was used. The one-to-one interviews lasted about 25-60 minutes. The interviews were conducted around the participants' experiences related to PRMD and their subjective thoughts. Interviews were conducted face-to-face in a relaxed, trustworthy environment. In order to ensure the integrity and accuracy of the data transcription, the whole interview progress was audio recorded after taking strict confidentiality measures and obtaining the consent of the participants. The data collected was only used for this study. All participants were presented anonymously in this paper (such as Pianist 1 and Pianist 2).

Data Analysis

This study combined the case study and phenomenological methods for data analysis and took the analytical methods of Creswell & Poth (2016); Moustakas (1994) as guidance for phenomenological data analysis. Braun & Clarke's (2012) thematic analysis method were used as guidance for data analysis of case studies. Specific analysis steps were as follows

1. Transcribed the interview verbatim.
2. Deleted all irrelevant statements and listed essential statements to form the initial code.
3. Reviewed potential themes. Analyzed and sorted out essential statements, then grouped the interview data through cross-case study to prepare for the next step to determine the research themes.
4. Defined and named the themes, including common themes and sub-themes.
5. Generated reports. Developed a textural description of what participants experienced and a structural description of how those phenomena were experienced, then revealed the "essence" reflected in the phenomena (Moustakas, 1994).

Reliability

As mentioned above, from the perspective of participant selection and interview strategy, the researcher was confident that the selected participants met the research requirements, the interview guide could effectively serve the research objectives, the interview environment was relaxed and appropriate, and accurate, reliable and in-depth information could be obtained. After the interview, the researcher handed over the detailed transcribed interview contents to the participants for confirmation and clarification, further enhancing credibility. At the same time, the researcher maintained close communication and exchange with

supervisory committee members, professional pianists, and healthcare workers during the whole research process, carefully listened to the opinions of experts in related fields on the survey results and actively accepted their supervision throughout the study (Majabadi et al., 2016; Smith et al., 2018; Coleman, 2022).

Results

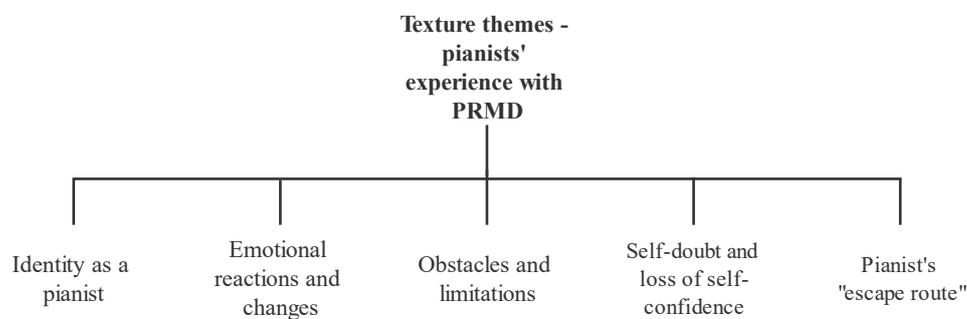
This study investigated the experience of student pianists related to PRMD and the influence of PRMD on student pianists. There were five textural themes related to the experiences of student pianists and five textural themes related to the influence of PRMD on student pianists.

The textural themes of this study are shown in Table 2 and Table 4.

Student Pianists' Experiences with PRMD

Table 2

Textural Themes of the Pianists' Experiences with PRMD



Identity as a Pianist

The participants all had a strong sense of identity as pianists. Pianist 5 felt that her identity as a pianist embodied her personal and social values. Without this identity, she would feel confused and not know the meaning of her existence. Pianist 1 believed that her identity as a pianist made her feel that the piano was part of her soul and that her life could not be separated from the piano and music. Pianist11 believed that being a pianist "means what I will do, what others think of me, my identity, my future career, and my development path. It is also an expression of my social identity."

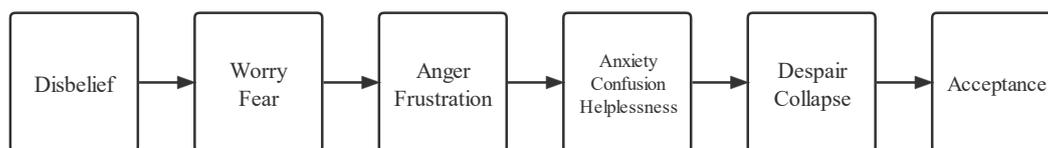
Along with identity came a sense of honor and accomplishment. Pianist 2 said, "I think it is very important to me. It (the piano) is indispensable to me, and I cannot lose it. It is a reflection of who I am." Pianist 1 and Pianist 4 also cherished their identity as pianists and felt that it was a very satisfying thing to convey the beauty of music with the sound of the piano.

In addition, some participants talked about the conflict of identity as an injured pianist - the conflict of identity as a pianist and a patient. They thought that they might face public doubts and distrust in their playing ability as an injured pianist. Pianist 3 fell into this category. She said, "I think I am a pianist and a patient at the same time. I think it is a little too conflicting. I feel ashamed, and I think people will be prejudiced against me."

Emotional Responses and Changes after Suffering from PRMD

Participants' emotional responses and changes revealed a progressive process from disbelief to acceptance, as shown in Table 3.

Table 3

Emotional Responses and Changes of Pianists

The participants' first reaction to PRMD was generally one of disbelief. When Pianist 12 was told by doctors that he had tenosynovitis and was advised to stop playing, the most apparent emotional reaction was disbelief that playing the piano could cause such harm to the body. Then, there is worry and fear. Pianist 1, Pianist 4, and Pianist 5 were afraid that they would never be able to play the piano again because of their injuries. Then came anger and frustration. Pianist 3 felt "a little angry, angry, but helpless" when she discovered that she was suffering from PRMD. Then came anxiety, confusion, and helplessness. Pianist 5 described it this way: "When I found that I was ill and had no way to control the situation, I felt very helpless." Despite trying various relief and treatment measures but still unable to improve the pain and discomfort, some participants reported despair and collapse. However, with the long-term coexistence with PRMD, some participants learned to accept reality and face it positively and no longer have too many negative emotions. Pianist 5 was in this situation. She said

I'm comfortable with PRMD now. I understood what the therapist had said to me there was a long way to go, a lot to do in life, and a lot to give. So as long as I live, there will be good things and good news, and I must hold on.

Hindrance and Restriction

Some participants felt hindered and restricted by PRMD. It manifested mainly in limited playing time, limited playing level, limited physical activity, *thoughts bound by illness*. Pianist 2 thought that the most significant difficulty he faced after suffering from PRMD was that he could not play as long as he wanted. Physical activity was also restricted. Pianist 5 felt constrained when playing the piano and unable to play the way she wanted to. Pianist 4 also believed that PRMD limited her performance level. She could not finish the difficult work with high quality due to the level of pain. She felt that the injured body was limiting her soul, "my aspirations cannot be well displayed. My soul is imprisoned in my body."

Self-doubt and Loss of Confidence

Many participants experienced self-doubt after suffering from PRMD. During the interview, they speculated about the following questions: "Is piano playing right for me? Can I still play the piano? Can I get back to playing at a normal level? Will I ever be able to play the piano as a career? Am I worse than others? Can the disease be cured or not? Does PRMD cause more damage with age? Can I still realize my dreams and values?". Some participants suffered from a loss of self-confidence, damaged self-esteem, and a substantial psychological gap due to PRMD.

When talking about the influence of PRMD on her, Pianist 5 said, "PRMD really gave me a lot of pain and suffering, seriously wounded my self-esteem, and even made me want to leave the world once." Pianist 1 thought that the most significant harm PRMD brought to her was psychological

After my injury, I felt like I had lost confidence. For example, when my body suddenly suffers from physical problems during the performance, I feel inferior. I am a pianist. How can this body full of pain support my performance, and how can it provide me with enough physical strength and endurance to perform?

The Pianist's "Escape Route"

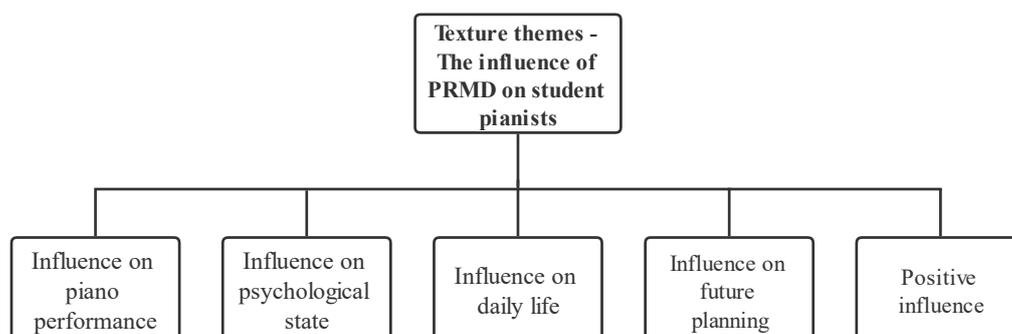
During the interview, the researcher asked, "If one day, PRMD develops to the point that it will cause great harm to the body to continue performing, will you choose to insist or give up?" Surprisingly, only four participants chose to keep playing. Pianist 1 believed that all her professional aspirations were related to playing the piano. "I will not give up until my hands are completely immovable, or I am forbidden to play," she said. Pianist 8 believed that not playing the piano would cause him to lose his love for life and not know how to realize his dreams and values. Pianist 2 also believed that playing the piano was his lifelong dream and for the love of himself and his family, and he would hold on until the last moment. Pianist 5 felt that playing the piano was the meaning of her existence, half of her life.

The rest of the participants were more likely to give up playing when they were hypothesized to have severe PRMD because they felt their health was more important - but they did not give up on a music career altogether. Pianist 11 described his feelings: "In front of heaven, my hobby is a little small." Pianist 6 and pianist 9 both believed that the body is the most important thing, and only with health can they have everything. Pianist 4 used the Chinese saying, "where there is a green hill, there is wood to burn," to describe her tendency to give up.

The Influence of PRMD on Student Pianists

Table 4

Textural Themes of the Influence of PRMD on Student Pianists



Influence on Piano Performance

The influence on piano performance was mainly reflected in three aspects: the performance level and performance state, time spent playing and practicing the piano, and choice of repertoire.

Many participants reported being distracted and unable to settle down to play because of physical pain and discomfort. Pianist 5 described her "emotional irritability, impulsiveness, and lack of concentration" when she experienced physical discomfort during the performance. Pianist 1 explained that she could not play many technical and challenging works after suffering from PRMD and felt her performance level was declining. In addition, many participants spent less time practicing and playing the piano after suffering from PRMD.

Pianist 5 said that she could not practice the piano for as long after being diagnosed with PRMD. Pianist 10 had stopped playing for a long time due to the aggravation of tenosynovitis. Some pianists felt that the relief and treatment of PRMD were taking up valuable time that could be spent learning the piano. Pianist 11 described his medical experience: "I could have spent the time studying and listening to music. But now I have to spend my time in therapy." Finally, PRMD also influenced the participants' choice of repertoire. Pianist 11 found that he could not play difficult piano pieces after the injury, and it was challenging to deal with the rhythm and speed. Pianist 2 and Pianist 4 also found playing long piano works difficult after the injury. Some participants, like Pianist 1, switched from technical pieces to slower, more profound pieces.

Influence on the Psychological State

Some participants mentioned that PRMD affected their psychological state to a certain extent, creating a mental burden that affected their mood to play, and made them prone to negative thoughts. Pianist 5 spoke of the psychological challenges she faced due to PRMD, feeling that she could not meet her parents' expectations, anxiety about her future career, and frustration with herself. Pianist 3 felt that physical pain and discomfort greatly affected her mood during the performance. She would feel sad and depressed and thought she was spiritless. Pianist 9 felt that PRMD burdens her mentally and physically, but she was also trying to adjust her negative emotions to regain the meaning of playing and living.

Influence on Daily Life

Some participants with more severe PRMD believed that pain and discomfort had affected their daily life. It was mainly reflected in a loss of control of the pace of life, economic pressure, and burden, being unable to take care of family.

Pianist 12 said the most significant Influence of PRMD was "not being able to schedule my activities as I wanted to." Pianist 11 thought it would bring him economic pressure, as "going to the hospital is expensive; registration is the first step, the beginning of the money. Examinations, treatments, drugs, and surgeries are costly". Pianist 1 agreed that treatment for PRMD is a considerable expense and will put some financial pressure on her family. Pianist 8 and Pianist 10 suffered from relatively severe PRMD, and they believed that the pain and discomfort caused by PRMD had affected their everyday life. Even if they do not play the piano, they still feel pain which is, at times, unbearable when lifting heavy objects. Pianist 10 could not get out of bed when her pain was at its worst, and she had to rely on others to take care of her. Pianist 1 experienced pain in the cold and wet weather even when she did not play the piano. Pianist 8 said that his life was out of balance because he had no energy to take care of it.

Influence on Future Planning

All participants, as well as being a pianist, have student status. They had not officially entered a professional career yet, but they had been forced to make changes when planning their future and to choose their job due to physical problems. Pianist 9 originally wanted to study abroad to learn piano performance in a better place but gave it up due to physical reasons. "Now, I do not think I have such good energy anymore, and I think high-intensity performance may damage my body, so I do not want to further my study." Pianist 2 said that if his physical pain develops to the point that he needs to spend much money on medical treatment, he

would feel that the gain is not worth the loss. Like Pianist 2, Pianist 3 believed he would most likely quit playing piano after graduating from college and becoming a music theory teacher.

Positive Influence

Despite the many adverse effects and consequences of PRMD, participants also talked about the positive Influences. After suffering from PRMD, Pianist 8 cherished the opportunity to play the piano and treated every performance as the last one, trying to make it the best. Five participants used their experiences to help others going through the same thing. When Pianist 4 was a piano tutor, she encouraged students to play correctly and avoid injury as much as possible. She said, "I wanted to give someone an umbrella because I was in the rain myself." After suffering from peri arthritis of the shoulder, Pianist 5 told her classmates who had the same experience how to prevent the condition. Pianist 12 empathized with other pianists who had suffered from PRMD and shared with others how to prevent and alleviate the condition. After the injury, many participants became aware of how they had neglected their bodies and started to pay attention to their health and physical condition and increased physical exercise. They also became alert to and avoided playing habits and living habits that may aggravate PRMD. Pianist 1 paid more attention to the connotation of the repertoire rather than unilaterally pursuing the difficulty and skill of the repertoire. She said

After the injury, I prefer to dig deep inside the repertoires. A true musician must be an artist first. A piece of art must be more than just a stunning shape to give it more meaning. So, playing the piano is the same thing, not to say that you are a skilled pianist, but to be able to interpret the meaning of the work.

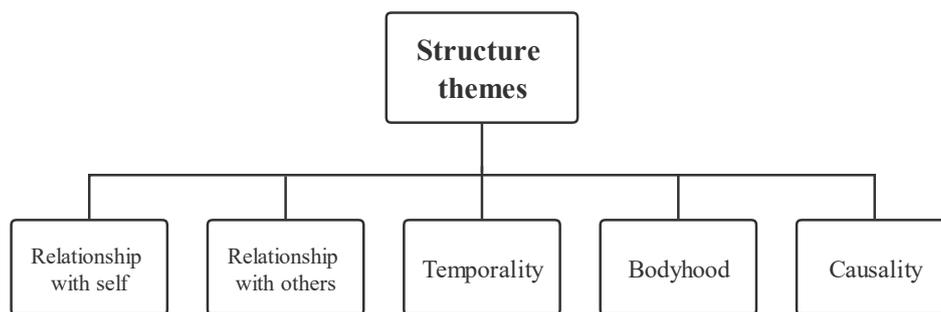
More importantly, some participants learned to view problems from multiple perspectives and accept negative experiences in their life after long-term coexistence with PRMD. Pianist 1 believed that everyone, not only pianists, should learn to accept negative experiences in life. After all, "life must have cracks so the sun can shine through." "My experiences are not necessarily bad as long as I can learn and grow from them," she said with relief. Pianist 2 mentioned that during his long coexistence with PRMD, he learned to look at problems from multiple perspectives. He said

I can't play the piano as perfectly as I used to, but what is in my mind is always mine, my feeling for music, my playing technique, and my insight into art. These will not disappear.

Discussion

This chapter returned to the phenomenon itself and used the lens of existential universal structures to conduct a second analysis of the data to reveal the structural themes of spatiality, causality, relationship with self, relationship with others, materiality, temporality, and bodyhood (Moustakas, 1994). The structural themes of this study are shown in Table 5.

Table 5
Structural Themes



Relationship with Self

The relationship with the self was mainly manifested as subjective experience. The study found that all participants had a strong sense of identity as pianists and felt proud of their honors and achievements. The stronger the sense of identity, integrity, and accomplishment, the more deeply they felt and reacted to PRMD. Because they were deeply connected to their identity as pianists and the piano-playing profession, they would feel depressed and helpless after suffering from PRMD. They worried about whether their physical condition would worsen after suffering from PRMD for a long time and whether they could continue to play and realize their dreams. When performance quality was affected by physical limitations, the participants' self-esteem would be seriously hurt. They would have low self-esteem and self-confidence and even doubt whether the piano playing was the right path for them. The identity conflict between the pianist and the patient caused psychological torture for most participants for a considerable time. Nevertheless, some participants also had solid self-adjustment abilities and could rationally deal with the relationship between pain and occupation. They indicated that even if they could not continue with piano playing, they would choose to engage in other professions related to music, such as piano teaching, to realize their personal and social value in another way.

Relationship with Others

Relationships with others also depended primarily on the subjective feelings and actions of those involved. After suffering from PRMD, some of the participants worried that their physical discomfort would affect their performance level, so they would be questioned and distrusted by the audience, teachers, and classmates, and would also be unable to achieve a high-quality performance and meet others' expectations after injury, thus becoming a disappointing pianist. These subjective imaginings were not necessarily the true reflection of objective reality but would put the relationship between the parties and others in a delicate and complicated state. The researcher also found that the relationship between the participants and others was not entirely negative after suffering from PRMD. Quite a few participants said that after suffering from PRMD, they had more sympathy and understanding for other pianists who had experienced the same thing and were more willing to share their experiences, as well as practical ways to prevent and alleviate PRMD, with others. Participants with teaching experience planned to pay more attention to guiding students to avoid PRMD injury and to use their experiences to help others.

Temporality

Compared with the relationship between the self and others, temporality was more objective. When participants described their PRMD-related experiences, they generally reported time

constraints. Because of physical pain and discomfort, they could not play the piano for as long as they would otherwise. They were forced to take breaks, stop playing, practice less, and perform less often. In addition, some pianists felt that seeking therapy was a waste of time. Because of PRMD, they had to sacrifice the time that should have been devoted to music for treatment. Temporality also had a profound influence on participants. Most participants reported far more psychological suffering than physical suffering.

Bodyhood

The physical damage to pianists was concentrated in the shoulders, cervical spine, back, waist, and hands. The main symptoms were pain, soreness, tingling, swelling, numbness, stiffness, weakness, fatigue, and slow movement. Some participants felt that their physical activities were limited, affecting their everyday life and making them unable to lift heavy objects, sit for long periods, raise their arms properly, and participate in sports. Several participants with severe PRMD even had serious conditions such as being unable to get out of bed, needing care from others, and fearing cold and wet weather. Reactions to physical discomfort varied, but psychological factors also played a big part, with one participant reporting feeling that their "soul is completely imprisoned in a wounded body."

Causality

Although risk factors for PRMD were not investigated in this study, almost all participants unconsciously attributed the cause of their illness to themselves when describing their experiences with PRMD. For example, due to insufficient attention to health problems, some participants did not pay timely attention to the changes in their bodies caused by playing the piano, which led to the irreversible result of PRMD. Excessive practice and excessive pursuit of playing challenging repertoires resulted in musculoskeletal overload for a long time and, ultimately, injury. Some participants were unable to give up their love for the piano and continued to play despite the physical pain, which aggravated the damage caused by PRMD. After acknowledging the lessons learned from these causal relationships, some participants cherished the limited opportunities to play the piano more, some chose pieces to play more carefully, and some learned to face and rationally deal with the negative experiences of PRMD.

Conclusion

This study showed that PRMD had significant influences on young student pianists. PRMD not only brought physical pain and inconvenience to pianists but also brought more spiritual harm and influence, including damage to self-confidence and doubt about the value of the pianist's identity, especially the profound influence on career development and life path choice of young student pianists. The study on the experiences of student pianists with PRMD provided us with a new perspective on how to deeply understand, scientifically prevent and effectively treat PRMD, which had particular reference value for injured pianists and the performing arts medical field.

Although this study had limitations, it still provided a specific and unique perspective from young pianists in the field of performing arts medicine, which had its unique value and significance, regardless of the research object or scope. In terms of the identity and nature of the research objects, the influence of PRMD on professional pianists has attracted the attention of many researchers. There had yet to be any special investigation into the influences of PRMD on student pianists. This study can therefore provide a new perspective

and remind the public and healthcare workers to give this particular group the understanding and concern they deserve. In terms of the countries and regions of the research objects, previously, most western scholars discussed the influence of PRMD-related experience on a group of pianists. However, the research objects were western pianists. This study can provide an eastern cultural perspective and make the discussion of PRMD-related experiences of the group of pianists more comprehensive in terms of region coverage and more systematic in terms of discussion conclusions.

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Appendix 1. Interview Guide

- 1 Please describe your background and experience as a student pianist.
- 2 When did you start to view yourself as a pianist? What do you think of your identity as a pianist?
- 3 How do you feel when you know you are injured or even suffer from PRMD because of playing the piano?
- 4 When you know that PRMD is difficult to cure completely and will even coexist with your playing career for a long time, what is your opinion?
- 5 Do you agree that experiencing pain and discomfort is necessary to improve your playing skills?
- 6 What influences and consequences has PRMD brought to you?
- 7 What changes have you made in your life and piano-learning career after suffering from PRMD?
- 8 After suffering from PRMD, what difficulties must you face in your life and performance?
- 9 If one day your PRMD is so serious that it will cause significant harm to your body to continue playing, will you insist or give up? Why?
- 10 Please tell me about other PRMD-related experiences not mentioned in this interview.