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An inquiry into the physiological challenges experienced by individuals with visual impairments

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Abstract

Background: Quality of life (QOL) is commonly used in clinical care and research to evaluate a patient's overall health and the effectiveness of their therapy. The aim of this study is to examine the influence of vocational training on the quality of life of individuals with visual impairments. Approach: We utilized the WHOQOL-BREFTW, a concise version of the World Health Organization QOL Questionnaire, to evaluate four areas: physical, psychological, social, and environmental. We applied a non-equivalent pretest-post-test control group design. The experimental group had a 6-month vocational training program, which encompassed both life and career rehabilitation. Upon finishing the vocational training, the experimental group had an average quality of life (QOL) score of 3.34 ± 0.18, whereas the control group had a score of 3.10 ± 0.85. The findings of the generalized estimating equation (GEE) analysis showed a significant increase of 10.81 (1.10) in the overall quality of life (QOL) ratings after the intervention, compared to the scores before the intervention, in the control group. Conclusion: Vocational training has a substantial positive impact on the overall quality of life for those with visual impairments. The dimensions of psychological, social connection, and physical health in WHOQOL-BREF TW showed the most significant improvements. The following is emphasized: 1. Acquiring professional knowledge and technical skills can improve the capabilities of individuals with visual impairments. 2. The enhancement in quality of life largely manifests in the domains of physical, psychological, and social well-being. These levels encompass the preservation of physical well-being, diminishing reliance on medical assistance, and improving self-care skills for the purpose of rebuilding one's life. Integrating electronics with directed action can reduce the risks associated with outdoor activities.

Keywords- Sleep hygiene, prevalence of depression, visually impaired; quality of life

1. Introduction

More than 2 billion individuals throughout the globe are impacted by some form of visual impairment or blindness, according to a 2021 report from the World Health Organization [1]. Untreated conditions like near-sightedness, farsightedness, glaucoma, and cataracts impact the vision of at least 1.1 billion people worldwide. The predicted factors that will lead to a notable rise in these numbers include an aging population, a growing population, and changing lifestyles marked by less time spent outside and more activities requiring near vision. More than half of the world's population, particularly in low- and middle-income nations, may be blind by 2050, according to a worrisome prediction [2].

The prevalence of vision impairment among Chinese individuals aged 50 and up is expected to reach 10%, according to preliminary estimates [3]. In the 2018 National Health Interview Survey (NHIS) conducted in the

US, more than 23 million individuals (aged 18–64 and 9.2 million people 65 and over) reported having severe visual impairment [4]. Around 2.28 million people in the UK were found to have moderate to severe visual impairment in 2020, with 171,000 being classified as blind [5]. Consistent with this global trend, the number of visually impaired individuals in Taiwan has been recorded by the Ministry of Health and Welfare as increasing from 38,747 in 2000 to 54,317 in 2022. The high prevalence of visual impairment among middle-aged and elderly adults is highlighted by the fact that 64.5% and 72.8% of these instances were associated with individuals who were 50 years of age or older, respectively [6]. Also, as the global population ages, more and more people will likely lose their vision [2].

Due to the reliance on sight for perception, visual impairment significantly impairs one's capacity to be aware of one's environment [7]. There is a lack of comprehensive study on adaption techniques for people with visual impairments, with most studies focusing on the actual process of going blind [8]. Researchers Jones et al. [9] discovered that people who are visually impaired have a harder time with daily tasks and are more likely to suffer from malnutrition. It could take a lot of time for those who lose their sight to get back into their previous careers [9]. Reading, writing, information acquisition, self-care, relationship maintenance, job search, and psychological adaptation are just a few of the many tasks that can be greatly affected by visual impairment, as highlighted by Sweeting et al. [10] and Aghazadeh et al. [11].

2. Research Materials and Methods

2.1. Design

National Cheng Kung University's Human Experiment and Ethics Committee (IRB NCKU HREC-E-107-00032) was the IRB that gave the go-ahead for the study. A survey questionnaire was used to collect data, and replies were received in person, via phone, and online. Using a non-equivalent pretest-posttest control group, we conducted our study using a quasi-experimental approach. The number of people with visual impairments that participated in our survey was 173. Using purposive sampling, 108 individuals were assigned to the experimental group. Individuals with prior vocational training experience were recruited from the Central District Visually Impaired Association, Yilan Muguang Reconstruction Centre, and the Taiwan Rehabilitation Institute for the Blind. (2) 65 people were randomly picked from various visually impaired associations throughout different locations to make up the control group.

The trial did not begin until after the pretest. The control group continued with their regular routines, whereas the experimental group participated in a 6-month massage vocational training program. A post-test was given to both groups after the training to compare their quality of life (QOL).

2.2. Recruitment

Organizations in Gwalior such as the Institute for the Blind, the Mu-Kuang Rehabilitation Centre for the Blind, and the Various regional visually impaired massage therapist’s union were used in the purposive sampling process to get the participants. The following was a list of the inclusion criteria: As a formal certification, you need to have a government-issued disability manual and be visually impaired in order to qualify. Being twenty years old is also a requirement. Two, you shouldn't be disabled in more than one way. Possessing strong verbal and nonverbal communication skills is crucial. The fourth and last need is that you have been given a thorough explanation of the research and its goals, and that you have accepted to participate by signing an informed consent form.

Targeted action refers to the process of improving sensory perception and motor skills in order to achieve independent movement. Self-care prioritizes the implementation of healthy eating habits and lifestyle choices, while also promoting the growth of familial and social relationships. Information utilization develops proficiency in utilizing electronic devices and internet resources.

The goal of these classes is to encourage people with visual impairments to find new ways to contribute to society by building their confidence, skills, and abilities [4,8]. Helping people who are visually impaired gain the skills they need to succeed in life and work is the goal of life and vocational rehabilitation programs. Programs like these help people learn new skills and meet new people, which in turn builds a support system that is good for their mental health and reduces loneliness.

This study utilized a non-equivalent pretest–post-test control group design. We collected demographic data and utilized the World Health Organization QOL Questionnaire BREF Taiwan Version (WHOQOL-BREF TW) [9,12].

Table 1. Vocational Training Program

Vocational Training Program
Vocational reconstruction professional competency. Deliver human physiology and professional massage training and guide participants through the requirements the technician certificate examination to strengthen their professional competency.
1. Introduction to human physiology, healthcare 2. Introduction to acupoints. Functions, care and hygiene related to various organs of the body.
3. Clinical massage technique: Effleurage, petrissage, friction, tapotement and vibration massage
4. Physiology and hygiene: functions, care and hygiene related to various organs of the body
5. Professionalism: Occupational regulations and independent skills in employment

Table 1 depicts the details of vocational training.

2.4.1. Demographic Information

This study gathered data on the gender, age, marital status, educational attainment, occupation, occupational category, monthly income, religious views, lifestyle, independent mobility, age at onset of visual impairment, source of visual impairment, and significant others of each participant.

2.4.2. WHOQOL-BREF TW

There are a total of nine items that make up the WHOQOL-BREF TW [19]: seven items dealing with physiological health and autonomy; six items covering psychological factors, including mental health, spirituality, religious beliefs, and personal beliefs; four items dealing with social relationships; and finally, nine items dealing with environmental factors. Together, the items in these domains plus the two general evaluation items bring the total number of items to 28. All of the items were considered general and were scored according to how the participants felt about them. By including these items, we were able to compare various cultural and ethnic groups. Using a 5-point Likert scale, where a higher score indicates a higher quality of life (QOL) [7,8], each question was scored. To get the score for each domain, we added up all the item scores within that domain, divided by four, and then divided by the total number of items in that domain. The sum of all domain scores was between four and twenty.

3. **Results**

3.1. Comparing Personal Characteristics

Table 2 summarizes the characteristics of 173 people who are visually impaired. Their average age is 41.5, they are generally single, and they have degrees beyond those of a bachelor's degree. A large portion of the population

lives at home with their relatives and practices Buddhism. Most people who offer companionship are either parents or spouses, then children or siblings. The majority of cases of severe vision impairment or blindness (47.9%) are caused by diseases. Cataracts, glaucoma, ARMD, core activities, diabetic retinopathy, and age-related mechanical disorders are all examples of such diseases. While 11.4% of instances are due to unintentional injuries, such as those sustained in vehicle accidents or on the job, 35.3% are due to congenital blindness.

Table 2. Results of the chi-squared test for the demographic characteristics of the experimental and control groups.

Variables		**All Participants (N=185) n%**	**Experimental Group (N=125) n%**	**Control Group(N=60) n%**	**X^2**	**p**
Age (Years)	20-30	21	22	14	0.792	0.972
	31-40	22	27	15		
	41-50	34	39	23		
	51-60	38	22	17		
Average Age		52.4	51.3	53.8		
Gender	Male	61.2	55.8	39	0.256	0.748
	Female	87	46	28		

To find out if there is a significant difference in demographic variables between the two groups, we used a chi-squared test to look at the category components in vocational training courses. Table 2 shows that the control group's average age is 42.7 years old, whereas the experimental group's average age is 40.3 years old. There are more men than women among the participants (55.5% vs. 43.5%). In terms of educational attainment, 46.3% of the testing group and 50.8% of the control group hold degrees beyond the bachelor's level. When asked about their religious affiliation, 57.4% of the test subjects and 38.4% of the control subjects reported being Buddhist. In both the test and control groups, the percentage of people without a partner is 46.3%. Finally, living with family accounts for 75.0% of the experimental group and 70.8% of the control group. Both groups are very similar to one another, and the chi-squared test findings show that there is no statistically significant difference in demographic characteristics ($p > 0.05$). As a result, the results show that demographic differences between the subgroups had no impact on the evaluation of the study's goal. When comparing the two groups' average QOL questionnaire ratings, a t-test was used. Both groups averaged 3.09 (0.36) on the pretest, while the third group averaged 3.07 (0.32). According to the findings, the two groups' pretest scores were not significantly different from one another ($p > 0.05$). This provides more evidence that the two groups of people studied shared features related to QOL. Figure 1. Changes in scores of the experimental and control groups for the physical health and psychological domains

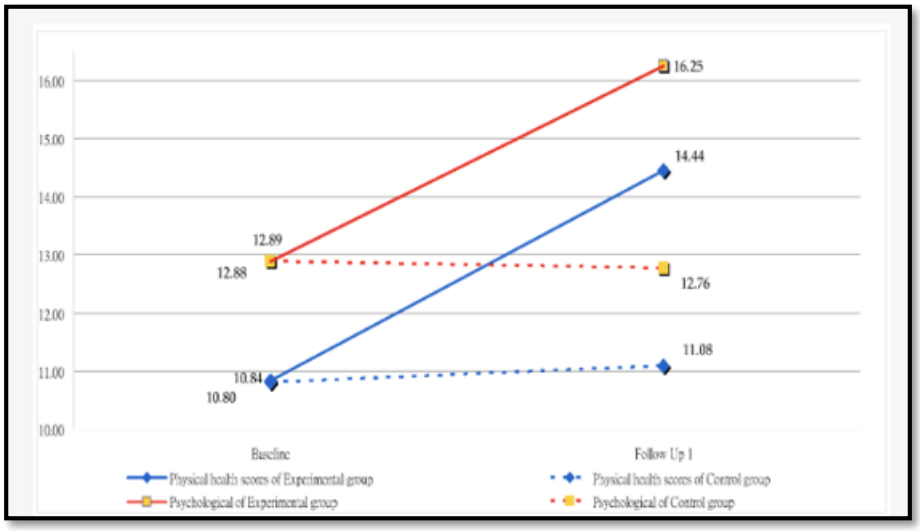

Figure 1. Changes in scores of the experimental and control groups for the physical health and psychological domains

4. Conclusion

To find out if there is a significant difference in demographic variables between the two groups, we used a chi-squared test to look at the category components in vocational training courses. There are more men than women among the participants (55.5% vs. 43.5%). In terms of educational attainment, 46.3% of the testing group and 50.8% of the control group hold degrees beyond the bachelor's level. When asked about their religious affiliation, 57.4% of the test subjects and 38.4% of the control subjects reported being Buddhist. In both the test and control groups, the percentage of people without a partner is 46.3%. Finally, living with family accounts for 75.0% of the experimental group and 70.8% of the control group. Both groups are very similar to one another, and the chi-squared test findings show that there is no statistically significant difference in demographic characteristics ($p > 0.05$). As a result, the results show that demographic differences between the subgroups had no impact on the evaluation of the study's goal. When comparing the two groups' average QOL questionnaire ratings, a t-test was used. Both groups averaged 3.09 (0.36) on the pretest, while the third group averaged 3.07 (0.32). According to the findings, the two groups' pretest scores were not significantly different from one another ($p > 0.05$). In terms of QOL, this indicates that the two groups of subjects were comparable.

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