Applying Person-Environment-Occupation in Cardiac Disease: A Case Report

Zeinab Fathipour-Azar1*, Mahnaz Hejazi Shirmard2

1. PhD Student, Department of Occupational Therapy, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran
2. PhD Student, Department of Occupational Therapy, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran

ABSTRACT

Occupation-based models can integrate the occupation into Occupational Therapy (OT) practice. These models offer a theoretical basis for OT interventions. Person-Environment-Occupation (PEO) is one of these models, but there is limited evidence to outline the use of PEO to support OT in cardiovascular diseases. Therefore; the aim of this study is to investigate the usefulness of this model in a patient with a cardiovascular disease. The participant was a 48-year old woman with cardiac disease (heart failure with NYHA 3). Results indicate that the application of PEO model significantly improved physical function and the quality of life. The findings of this study suggest that PEO can guide OT practice in cardiac rehabilitation.

Keywords: Person-Environment-Occupation, Occupational therapy, Cardiac disease

Copyright © 2018, Function and Disability Journal. This is an original open-access article distributed under the terms of the Creative Commons Attribution-noncommercial 4.0 International License which permits copy and redistribution of the material just in noncommercial usages with proper citation.
2012) (LaPier, 2012) and also their family’s quality of life (Shojaei, 2008).

The person-environment-occupation (PEO) model was developed in the 1990s at a time when OT, as a profession, had begun its development of theories accompanied by practice models and frameworks (Kramer, Hinojosa, and Royeen, 2003). PEO was originated from environment-behavior theories, theories of occupation and client-centered practices. According to PEO, a person’s environment and occupations dynamically interact with each other over time (Storng, 1999).

As mentioned earlier, the key components of PEO include: 1) Person: who can engage in occupations that are needed and desired. It has five components: physical, cognitive affective and spiritual. 2) Environment: the whole that surrounds a person. It has five aspects: physical, social, cultural, institutional and virtual. 3) Occupation: clusters of activities and tasks in which people engage over a life span, and bring social connectedness, joy and satisfaction and a sense of being purposeful for them. The main area of occupation is self-care, productivity, work, leisure and rest/sleep (Storng, 1999). Occupational performance is the outcome of the interaction between a person, the environment and an occupation. It is the dynamic experience of a person who engages in purposeful activities and tasks (occupation) within a certain environment (Storng, 1999).

The PEO Model can be used by occupational therapists in many different settings. This Model enables occupational therapists to conceptualize where and why there is an insufficient PEO fit, and subsequently plan an intervention to address the person, occupation and environment (Storng, 1999).

There is no evidence that suggests OT interventions in cardiac setting; also no research has been conducted on the application OT models in cardiac diseases. It is necessary to assess aspects that may be influenced in such diseases, as well as the application models of OT in chronic diseases because prevention and early intervention is cost benefit and has an essential role in health promotion. So, the aim of this study is to use a PEO model in a patient with cardiovascular disease and to delineate how PEO can guide occupational therapists in cardiac rehabilitation.

**Case Report**

The participant (M) is a 48 years-old woman, who is a home maker with cardiac disease (heart failure with NYHA 3 \(^1\); American college of cardiology define four functional class for cardiac patient’s function status from one (better statues) to four (bad statues)) (Sinescu and Axente, 2010). Her mother had cardiac disease, too. M had an angiography 1 year ago and after that surgery she practiced her previous roles as a wife and mother but had some complaints in terms of daily routine activities including going up the stairs, vacuuming, travelling, doing hand craft and carrying something. She had not received any rehabilitation intervention before this.

At the beginning, the researcher explained the process of the study and then the participant filled a written informed consent. We used the Canadian Occupational Performance Measure (COPM) as a main outcome measure for the evaluation of performance and satisfaction. COPM is a client-centered and individualized measure to assess the performance and satisfaction of performance in areas of self-care, productivity and leisure in 0-10 Likert scale (law, 2005). We also asked the participant to report her quality of life before and after the intervention.

Based on the concepts of the PEO and with considering a top-down approach we precede with three steps. In the first step, we identified occupational performance strengths and problems. Then, three aspects of occupational performance including person, occupation and environmental condition were evaluated, while in the third step we developed a plan for intervention and finally evaluated the outcomes (Kramer et al., 2003). The participant received this intervention over a 6-month period; three sessions every a week. Each session lasted 1 hour. The patient was very motivated to participate in this intervention and followed her plan appropriately.

---

1. New York Heart Aassociation
Applying Person-Environment-Occupation in Cardiac Disease

Figure 1 shows the PEO domains and performance problems in each domain (step 1 and 2). In the third step, we had some interventions for each component (person, environment and occupation).

As depicted in Figure 1, M complained about her restrictions in daily heavy works such as vacuuming due to fatigue and reduced endurance. We gave her some advices on how to have better physical function according to metabolic values for various activities (MET). We also encouraged her to do aerobic exercises for reducing fatigue and stress management. For cognitive deficiencies, we offered some modifications such as reminders. For emotional problems, we focused on her family. We explained that some of these behaviors are due to her drug’s side effects or her reaction to disabilities.

M lived on the third floor in an apartment they owned. It was difficult for her to go up the stairs, so the therapist suggested her to move to the first floor.

In occupation domains, she had some restrictions on travelling and doing her purposeful leisure activities such as hand crafts. This was mainly due to her reduced endurance. The above-mentioned aerobic exercises can indirectly improve the occupational engagement of the participant. We also encouraged her to participate in leisure activities such as swimming or dance class, which were her favorite leisure activities before her disease.

At the discharge session, M reported better performance and higher satisfaction with vacuuming, traveling, carrying something and doing handmade crafts. Also, the results of the COPM showed a 3-point increase in performance and a 7-point increase in satisfaction. This can be interpreted clinically as significant (Law, 2005). She also reported better quality of life after intervention and her family confirmed it too. At a follow-up after six months, the COPM performance scale decreased 2 points and satisfaction reduced 1 point.

Discussion

Heart Failure restricts the routine activity of individuals in their context, so it seems that an occupational view can improve occupational performance and the participation of these patients (Fathipour-Azar, Akbarfahimi, Vasaghi-Gharanmaleki, and Naderi, 2017). The PEO is an occupation-based model which emphasizes that an appropriate occupational performance is the outcome of a good transaction between person, environment and occupation. There is no evidence on the usefulness of this model in cardiovascular diseases. In this study, we applied the PEO concepts on a participant with cardiovascular disease.

As pointed out above, according to PEO, environment has the potential to affect physical and cognitive performance of individuals. In other words, it can play a role as a facilitator or barrier in doing occupations. In our study, modifying the place of the apartment yielded better performance in daily routines (Wong, 2018).

On the other hand, engagement is affected by congruency between functional abilities of a person and his/her occupations. Therefore, we had some advises by considering the met for promoting this congruency (Buettner, 2006).

There is no similar study about applying PEO in cardiac disease, but the effectiveness of some of our interventions such as aerobic exercises and consultations are well documented (Kelley, 2006, Nystoriak, 2018, Weinstein, 2013, Joyner, 2013). In this study, we found significant improvements in performance and satisfaction of performance in some of the targeted occupations of the participant. She also qualifi-
tatively reported that. This was a case report and had some limitations, for increasing generalizability it recommended to do studies with larger sample size.

Conclusion:
PEO enables occupational therapists to reflect the complex nature of occupational performance and to consider the possible transactions between a person, his/her environment and occupations. It can guide OT interventions in cardiac rehabilitation as it can evaluate the effectiveness of interventions applied to improve the fitness between a person, his/her environment and occupations.

Acknowledgments
This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The author appreciates the family of the studied participant.

Conflict of Interest
The author declared no conflicts of interest.

References
Buettner, L. L., Fitzsimmons, S., Atav, A. S., Buettner, L., Fitzsimmons, S., & Atav, S. (2006). Predicting outcomes of therapeutic recreation interventions for older adults with dementia and behavioral symptoms. dementia, 40(1), 12-14.

Chan, L. (2013). Effect of aerobic exercise training on fatigue and physical activity in patients with pulmonary arterial hypertension. Respiratory medicine, 107(5), 778-784.

Fathipour-Azar, Z., Akbarfahimi, M., Vasaghi-Gharamekhi, B., & Naderi, N. (2017). Evaluation of Activities of Daily Living Instruments in Cardiac Patients: Narrative Review. Journal of Modern Rehabilitation, 10(3), 139-143.

Garcia, S., Alosco, M. L., Spitznagel, M. B., Cohen, R., Raz, N., Sweet, L., Oberle, M. L. (2013). Cardiovascular fitness associated with cognitive performance in heart failure patients enrolled in cardiac rehabilitation. BMC cardiovascular disorders, 13(1), 29.

Joyner, M. J. (2013). Physical activity and cardiovascular risk: 10 metabolic equivalents or bust. Paper presented at the Mayo Clinic Proceedings.

Kelley, G. A., Kelley, K. S., & Franklin, B. (2006). Aerobic exercise and lipids and lipoproteins in patients with cardiovascular disease: a meta-analysis of randomized controlled trials. Journal of cardiopulmonary rehabilitation, 26(3), 131.

Kramer, P., Hinojosa, J., & Royeen, C. B. (2003). Perspectives in human occupation: participation in life: Lippincott Williams & Wilkins.

LaPier, T. K. (2012). Utility of the late life function and disability instrument as an outcome measure in patients participating in outpatient cardiac rehabilitation: a preliminary study. Physiotherapy Canada, 64(1), 53-62.

McColl, M. A., Law, M., Baptiste, S., Pollock, N., Carwell, A., & Polatajko, H. J. (2005). Targeted applications of the Canadian occupational performance measure. Canadian Journal of Occupational Therapy, 72(5), 298-300.

Sadeghi, M., Haghdoost, A. A., Bahrampour, A., & Dehghani, M. (2017). Modeling the burden of cardiovascular diseases in Iran from 2005 to 2025: The impact of demographic changes. Iranian journal of public health, 46(4), 506.

Seyam, S., Heidarnia, A. R., sadat Tavafian, S. ι of life and factors related to it in cardiovascular patients after heart surgery. 2013.

Shojaei, F. (2008). Quality of life in patients with heart failure. Journal of hayat, 14(2), 5-13.

Sinescu, C., & Axente, L. (2010). Heart failure–concepts and significance. Birth of a prognostic model. Journal of medicine and life, 3(4), 421.

Strong, S., Rigby, P., Stewart, D., Law, M., Letts, L., & Cooper, B. (1999). Application of the person-environment-occupation model: A practical tool. Canadian Journal of Occupational Therapy, 66(3), 122-133.
69. Applying Person-Environment-Occupation in Cardiac Disease

Weinstein, A. A., Chin, L. M., Keyser, R. E., Kennedy, M., Nathan, S. D., Woolstenhulme, J. G., Wong, C., & Leland, N. E. (2018). Applying the Person–Environment–Occupation Model to Improve Dementia Care, AOTA.

Yamada, S., Shimizu, Y., Suzuki, M., & Izumi, T. (2012). Functional limitations predict the risk of rehospitalization among patients with chronic heart failure.

Circulation Journal, 76(7), 1654-1661.

Yousefi, P., Sabzevari, S., Mohammadalizade, S., & Haghdooost, A. (2011). Study of quality of life in heart failure hospitalized patients in Kerman medical university hospital in 2008.
به کارگیری مدل شخص-محیط-اکیوپیشن در بیماری قلیبی: مطالعه موردی

زینب فتحی پور آذر1، مهناز حجازی شیرمرد2

1. دانشجوی دکتری تخصصی کاردرمانی، دانشگاه علوم پزشکی ایران، تهران، ایران
2. دانشجوی دکتری تخصصی کاردرمانی، دانشگاه علوم پزشکی ایران، تهران، ایران

چکیده

ماندگاری مبتینی بر اکیوپیشن می‌تواند اکیوپیشن را وارد مداخلات کاردرمانی کند. این مدل‌ها، پایه‌ای برای مداخلات کاردرمانی هستند. مدل شخص-محیط-اکیوپیشن (PEO) یکی از این مدل‌هاست که شواهد اندکی در مورد استفاده از آن در بیماران قلیبی عروقی وجود دارد. هدف از مطالعه حاضر، بررسی تأثیر استفاده از این مدل در یک بیمار با اختلال قلیبی عروقی است. شرکت کننده، یک خانم 48 ساله با بیماری قلیبی عروقی (سطح 3 طبقه‌بندی نیویورک) بود. نتایج این مطالعه نشان داد که استفاده از مدل شخص-محیط-اکیوپیشن می‌تواند سبب بهبود معنی‌دار علائم خاص و کمک زندگی شود. پیشنهاد ایمن مطالعه نشان می‌دهد که این مدل نوازنده راه‌نما در مداخلات کاردرمانی در زمینه توانبخشی قلیبی-عروقی بوده و آن را ارتقا بخشید.

واژه‌های کلیدی: مدل شخص-محیط-اکیوپیشن، کاردرمانی، بیماری قلیبی

اطلاعات مقاله

توجه وصول: 1397/3/15
تاریخ پذیرش: 1397/5/19
انتشار آنلاین: 1397/8/7

نویسنده مسئول:
زینب فتحی پور آذر
دانشجوی دکتری تخصصی کاردرمانی، دانشگاه علوم پزشکی ایران، تهران، ایران

پست الکترونیک:
Fathipourz@yahoo.com

تلفن:

-----------------------------

Vol.1 No.2 Spring 2018 Function and Disability Journal