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Web-Based Management to Improve Symptom Experience and Health-Related Quality of Life for Living Liver Donors

Li-Chueh Weng, PhD, RN
School of Nursing, College of Medicine, Chang Gung University, Taoyuan, Taiwan

Wei-Chen Lee, MD
Department of General Surgery, Chang Gung Memorial Hospital, Kwei-Shan Township, Taiwan

Background: Maintain and promote the health and well-being is the important goal of liver transplantation team. Living liver donor may experience some symptom distress after the surgery (Ladners et al., 2015; Shen et al., 2016). Poor symptom management may negative impact the long-term health-related quality of life of living liver donors (Takada et al., 2012). Web-based symptom management had been developed to help cancer patients to learn how to manage their symptom specifically and continually (Borosund et al., 2014). The effect of web-based symptom management program for living liver donors need further investigated. The Symptom Management Theory is used as theoretical framework for this study (Dodd et al., 2001).

Purpose: The aim of this study was to examine the effect of a web-based symptom management intervention on long-term symptom distress and health-related quality of life of living liver donors. This study is an ongoing project and it began on January 2018 and will end at July 2019. The tasks of this program are including the establishment of symptom management teaching material, web-site (www.ldltcare.com), equivalence analysis of paper-version and electronic-version questionnaires, and the formal program implementation and data collection. The result of equivalence assessment between the electronic-version and the paper-version questionnaire was reported in this time.

Methods: The study setting was a surgical ward and outpatient clinic of a medical center in northern Taiwan. The convenience sampling method was used to recruit sample in this study. The inclusion criteria were: age 20 and older, receive living liver donor surgery, agree and consent to participate. Donors who experience major surgical complication and need hospitalization will be excluded. Following completion of the baseline measures, participants will randomly (using computer random table) with equal allocation (1:1) to experimental group and control group (total sample size 92, 46 in each group). Control group receive the usual instruction of post-surgery care. Participants in the experimental group receive the usual care plus web-based symptom management intervention. Participants will teach to complete the electronic questionnaire to identify their specific symptoms. The information of specific symptom management and self-care instruction were established from the evidence-based of care guideline or study reports and provide to the participants through the internet
website. The web-site also set communication and alert function in order to facilitate the efficacy of symptom management. Data will collect prospectively at pre-operation (baseline), before discharge (post-surgery), and 1, 3, 6, 12, 24 months post-surgery. The primary outcomes are symptom distress and health-related quality of life. The Living Liver Donor Symptom Scale, Brief Pain Inventory, FACIT-Fatigue scale, Hospital Depression and Anxiety scale, and MOS SF-12 health-related quality of life scale are used to collect data. The equivalence assessment of paper -version and electronic-version questionnaires was collected from January 2018 to May 2018 at a surgical ward of a medical center located in northern Taiwan.

**Results:** There were 20 living liver donors included for equivalence assessment with average age 33 years old (SD=7.54). Most of them were male (55%), married (50%), employed (95%) and with high school and above education (90%). Majority of them were donated part of liver for their parents (55%). Participants completed two versions of questionnaires. The paper-version questionnaires were provided first, and then the electronic-version of questionnaire after 10 minutes. Results showed that the participants experience mild to moderate symptom distress (mean 20.2, 18.1 respectively), mild level of pain interference (mean 28.3, 25.9 respectively), moderate level of fatigue (mean 20.1, 19.0 respectively), and mild level of anxiety (mean 32.7, 34.1 respectively). The mean score of physical domain of quality of life (mean 35.9) was lower than mental –domain of quality of life (mean 48.4). The summary score of each domain of each scale was slight difference in paper-version and electronic-version, however, it did not show statistical difference (p>0.05). The intra class coefficients (ICC) of each domain of each scales was range form 0.544-0.971 that indicated perfect agreement between paper-version and electronic version. The equivalence between each item was presented by Kappa. The range of kappa value in each scale was as follow: symptom distress Kappa 0.221-1 (fair agreement- perfect agreement), pain interference Kappa 0.118-0.531 (fair agreement to moderate agreement), fatigue Kappa 0.160-0.595 (fair agreement to moderate agreement), anxiety Kappa 0.081-828 (fair agreement to perfect agreement), quality of life Kappa 0.500-1 (moderate agreement to perfect agreement). In addition, the internal consistency of reliability of each scale was acceptable (Cronbach a 0.61-0.95).

**Conclusions:** the equivalence assessment between paper-version and electronic version was acceptable that indicated the suitable for using the electronic-version questionnaire. Few items related to symptom showed lower equivalence may be due to the fact that the participants were still in the acute stage after surgery.

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**Title:**

Web-Based Management to Improve Symptom Experience and Health-Related Quality of Life for Living Liver Donors
Abstract Describes:
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Abstract Summary:
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Content Outline:
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A. Maintain and promote the health and well-being is the important goal of liver transplantation team. Living liver donor may experience some symptom distress after the surgery.
B. The effect of web-based symptom management program for living liver donors need further investigated.
Purpose:
A. The aim of this study was to examine the effect of a web-based symptom management intervention on long-term symptom distress and health-related quality of life of living liver donors.
B. The result of equivalence assessment between the electronic-version and the paper-version questionnaire was reported in this time.

Method:
A. The study setting was a surgical ward and outpatient clinic of a medical center in northern Taiwan. The convenience sampling method was used to recruit sample in this study.
B. Donors who experience major surgical complication and need hospitalization will be excluded. Following completion of the baseline measures, participants will randomly (using computer random table) with equal allocation (1:1) to experimental group and control group (total sample size 92, 46 in each group).
C. Participants in the experimental group receive the usual care plus web-based symptom management intervention.
D. Data will collect prospectively at pre-operation (baseline), before discharge (post-surgery), and 1, 3, 6, 12, 24 months post-surgery. The primary outcomes are symptom distress and health-related quality of life. The equivalence assessment of paper -version and electronic-version questionnaires was collected from January 2018 to May 2018 at a surgical ward of a medical center located in northern Taiwan.

Result:
A. Results showed that the participants experience mild to moderate symptom distress (mean 20.2, 18.1 respectively), mild level of pain interference (mean 28.3, 25.9 respectively), moderate level of fatigue (mean 20.1, 19.0 respectively), and mild level of anxiety (mean 32.7, 34.1 respectively). The mean score of physical domain of quality of life (mean 35.9) was lower than mental –domain of quality of life (mean 48.4).
B. The intra class coefficients (ICC) of each domain of each scales was range form 0.544-0.971 that indicated perfect agreement between paper-version and electronic version.
C. the internal consistency of reliability of each scale was acceptable (Cronbach a 0.61-0.95).

Conclusion: Using the electronic-version questionnaire was suitable.