Association between financial toxicity and mental health among metastatic breast cancer survivors

Zihao Xu[1#], Yan Lu[1#], Yiying Wu[1#], Jing Zhang[1], Pan Liu[1], Chengfang Shangguan[2], Haoting Shi, M.D.[1], Qing Qu, M.D.[2], Kunwei Shen, M.D.[1], and Nan Zhang[1]
[1] Department of General Surgery, Comprehensive Breast Health Center, Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China; [2] Department of Oncology, Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China. # Contributed equally.

Introduction

- Metastatic breast cancer (MBC) survivors require long-term treatment, resulting substantial costs and financial toxicity.
- Thought the financial burden was observed to be associated with cancer survivors' clinical outcome, limited evidence focused on the toxicity on mental health.
- Here, we aimed to determine the association between financial toxicity and mental health and its mediators among MBC survivors.

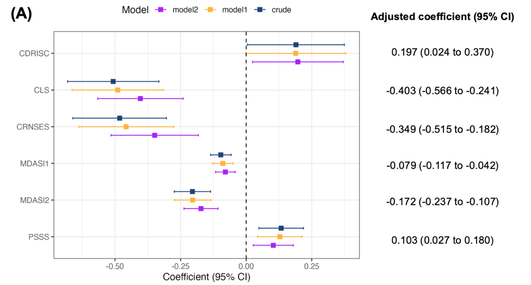
Methods

- Participants: MBC patients in Ruijin Hospital during May 2023 to October 2023.
- Measurements
  - Financial toxicity: Comprehensive score for financial toxicity based on patient-reported outcome measures (COST-PROM)
  - Mental Health: Connor-Davidson Resilience Scale-10 (CD-RISC)
  - Psychological symptoms: Cancer Loneliness Scale (CLS), Cancer-related Negative Social Expectations Scale (CRNSES), The M. D. Anderson Symptom Inventory (MDASI, part 1 and 2), and Perceived Social Support Scale (PSSS)
- Statistical analysis
  - Multivariable linear regression: association between financial toxicity and mental status, adjusted for demographic variables, disease profile, treatment, and SES variables
  - Mediator analysis
  - Network analysis

Results

- A total of 226 eligible MBC survivors were included.
- The majority were less than 60 years (61.9%), married (86.3%), retired/unemployed (69.5%), and with luminal subtype (48.7%)
- Association between financial toxicity and mental health (**Figure 1**).
  - Financial toxicity score was significantly associated with CDRISC score.
  - Significant association was also observed between COST-PROM score and CLS, CRNSES, MDASI-part 1 score, MDASI-part 2, and PSSS score.
  - Subgroup analyses suggested that the financial toxicity on overall mental heal status was more pronounced among luminal subtype, survivors with lower education level, and those who with unemployed status, and survivors with shorter disease duration.
- Mediation analysis (**Figure 2**)
  - CLS, CRNSES, MDASI-part 2, and PSSS were determined as mediators linking financial toxicity and over mental health status
- Network analysis (**Figure 3**)
  - The most pronounced bridge strength: "relations" from MDASI-part 2 (mean [SD] of bootstrapped standardized index value, 1.79 [0.69]), "social discomfort" from CRNSES (1.71 [0.85]), and "felt empty" from CLS (1.57 [0.99]).
  - Nodes with largest betweenness and closeness: "felt empty" from CLS (2.12 [3.40]) and "perceived avoidance" from CRNSES (1.36 [2.40]), respectively.

Figure 1. Association between financial toxicity and mental status among (A) all MBC survivors and survivors stratified by (B) disease type, (C) disease duration, (D) education level, and (E) employment status.



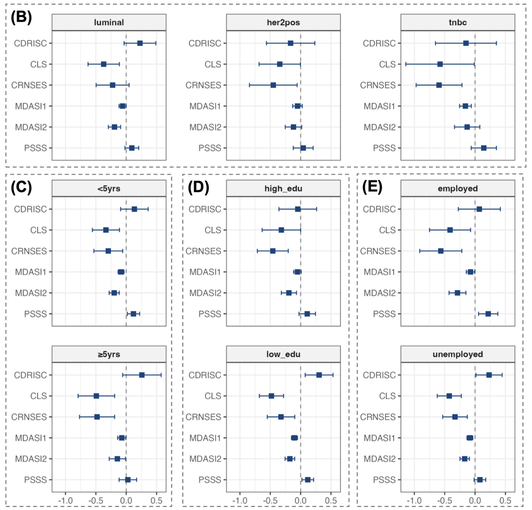


Figure 2. Mediation analysis. (A) Hypothesis directed acyclic graph. (B) Indirect effect coefficients and relative effects of the mediation candidates.

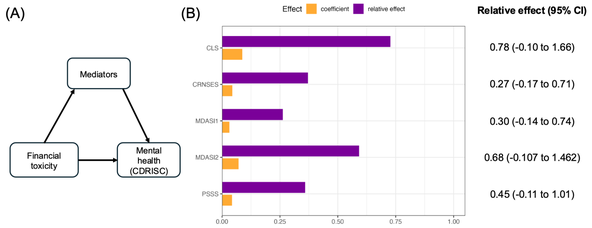
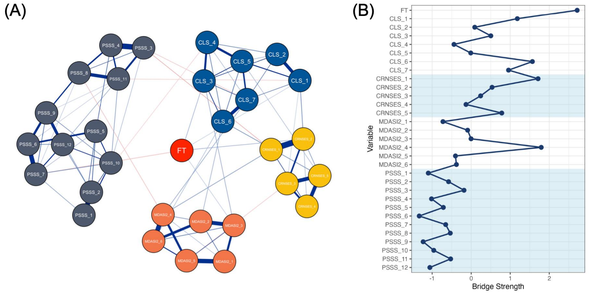


Figure 3. (A) Network analysis of identified mediators and (B) the standardized bridge strength.



Financial toxicity was significantly associated with worse mental health. Targeting certain dimensions regarding loneliness, social expectations, oncology symptom awareness, and social support might could reverse the toxicity.

Contact

Nan Zhang
Ruijin Hospital, Shanghai Jiao Tong University School of Medicine
Email: zn21076@rjh.com.cn

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