Late Effects as Symptom Clusters, Symptom Burden, and Quality of Life in Older Gastric Cancer Survivors:
A Mixed Methods Research

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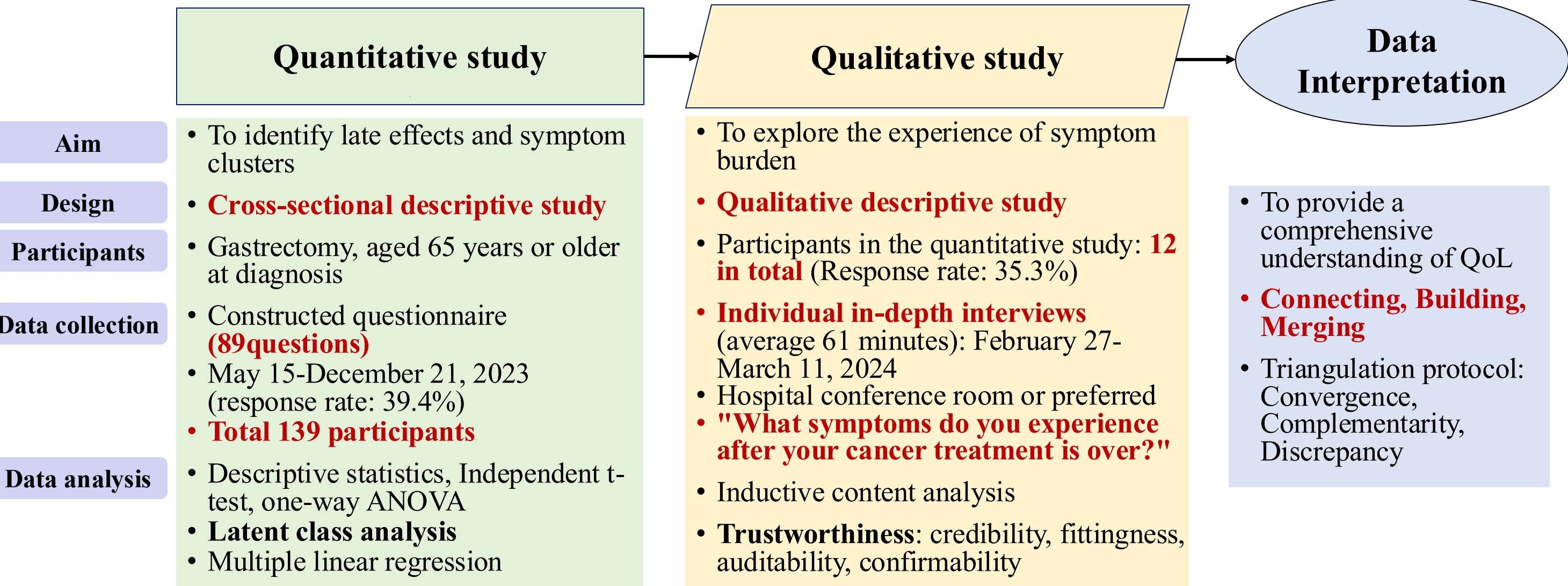
BACKGROUND

- **Gastric cancer** has a high incidence and mortality rate worldwide, and more than 55.2% of gastric cancer survivors are older adults. These older survivors face increased comorbidities, high societal healthcare costs, and decreased health-related quality of life (QoL).
- **Late effects** of cancer and its treatment, which are chronic conditions, contribute to the low QoL reported by survivors even after treatment ends. Identifying **symptom clusters,** where two or more symptoms co-occur, is important for effective interventions.
- Previous studies have focused on adult cancer survivors or single late effects, limiting our understanding of comprehensive late effects in older gastric cancer survivors.
- To **explore late effects, symptom clusters, symptom burden**, and their impact on **QoL** in **older gastric cancer survivors** using a mixed methods approach based on **theory of unpleasant symptom**.
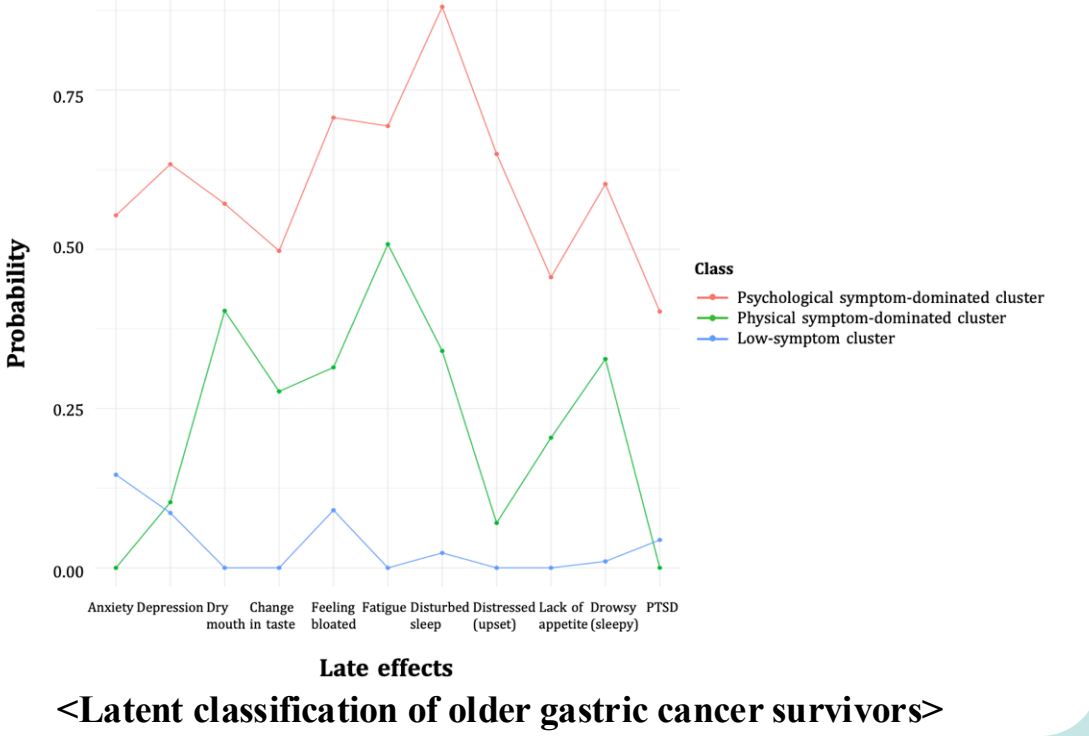
METHODS

- Research design: **Explanatory sequential design of mixed methods research**

	Quantitative study	Qualitative study	Data Interpretation
Aim	• To identify late effects and symptom clusters	• To explore the experience of symptom burden	• To provide a comprehensive understanding of QoL
Design	• **Cross-sectional descriptive study**	• **Qualitative descriptive study**	• **Connecting, Building, Merging**
Participants	• Gastrectomy, aged 65 years or older at diagnosis	• Participants in the quantitative study: **12 in total** (Response rate: 35.3%)	• Triangulation protocol: Convergence, Complementarity, Discrepancy
Data collection	• Constructed questionnaire **(89questions)** • May 15-December 21, 2023 (response rate: 39.4%) • **Total 139 participants**	• **Individual in-depth interviews** (average 61 minutes): February 27-March 11, 2024 • Hospital conference room or preferred • **"What symptoms do you experience after your cancer treatment is over?"**	
Data analysis	• Descriptive statistics, Independent t-test, one-way ANOVA • **Latent class analysis** • Multiple linear regression	• Inductive content analysis • **Trustworthiness**: credibility, fittingness, auditability, confirmability	

RESULTS

1. Quantitative study

- The mean age was **73.3 years.** mean postoperative survival was **60.7 months.** 81% were diagnosed with cancer **stage Ia**.
- The **emotional/informational support was the lowest**. 38.3% reported **clinically significant fear of cancer recurrence**.
- **Physical QoL** was **lower at 28.1%** and **psychological QoL** at **15.7%** compared to the general population. The most common moderate to severe late effects were **fatigue, feeling bloated, disturbed sleep, dry mouth, and drowsy.**
- Symptom clusters were categorized into **"low-symptom cluster," "physical symptom-dominated cluster," and "psychological symptom-dominated cluster."**

<Latent classification of older gastric cancer survivors>

RESULTS(cont'd)

1. Quantitative study (cont'd)

- **Factors that negatively impacted QoL** included **daily performance of functions, fear of cancer recurrence, and both physical and psychological symptom clusters**, while **positive factors** included a **longer postoperative period** and **higher social support**.
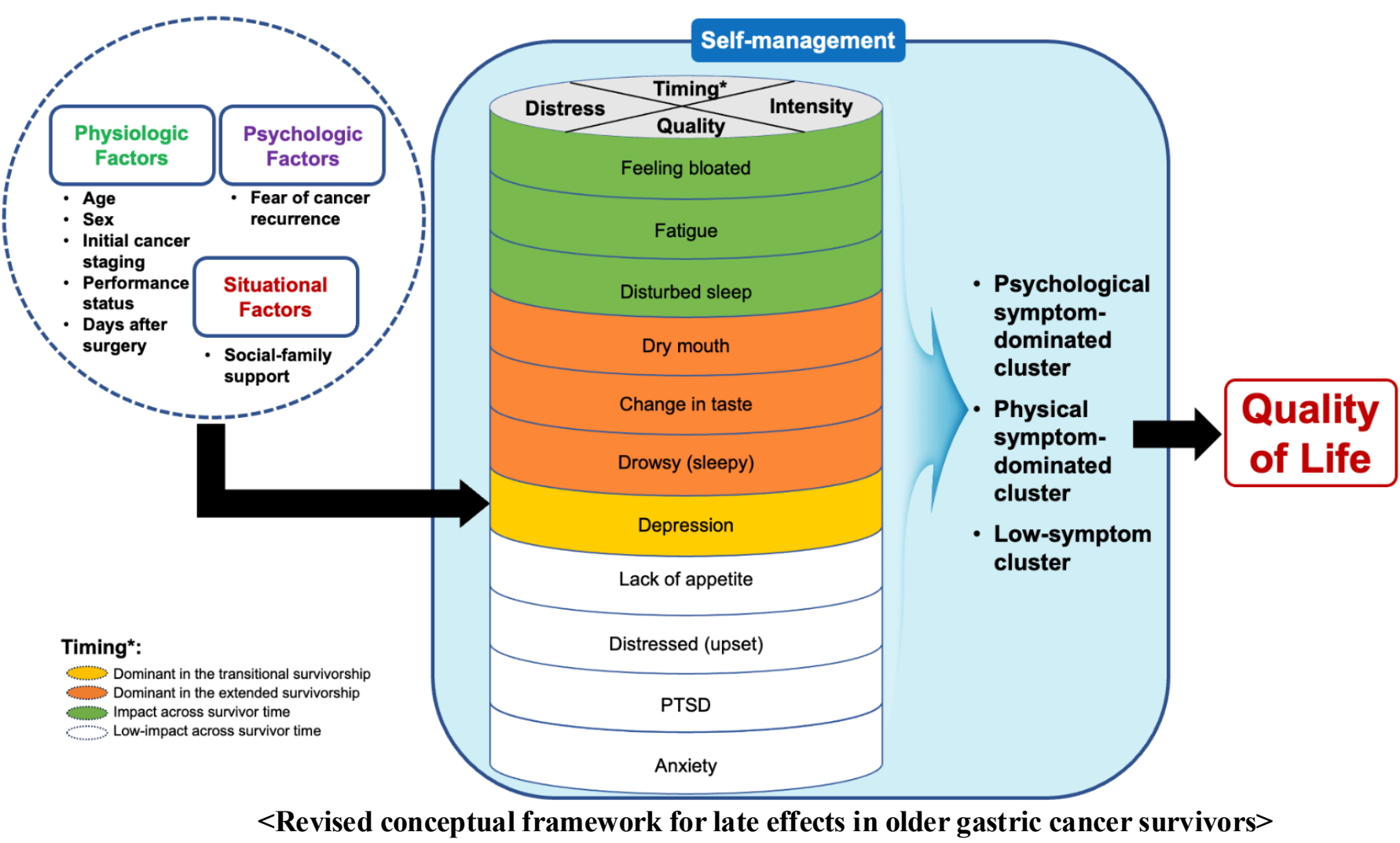
2. Qualitative study

- Participants: 65–81 years. a mean postoperative duration of 29.4 months. 8 in the physical symptom-dominated cluster, 4 in the psychological symptom-dominated cluster.

<Experience of late effects in older gastric cancer survivors >

Categories	Subcategories
Not the same as before surgery with mixed discomfort	• Uncomfortable with symptoms related to eating • Living with a variety of symptoms • Withdrawn after surgery • Waiting for time to pass without problems • Psychological symptom-dominated clusters are more of a struggle
Actively managing symptoms after surgery	• Initiating efforts to live a healthy life after surgery • Managing health on my own without guidance • Being supported by others

3. Integrate quantitative and qualitative data

- Integration identified 5 themes and 13 subthemes, including

✓ **maturation effects over time after surgery**

✓ **fear of cancer recurrence has different affects individually**

✓ **influence of social and family support**

✓ **experiencing the combined late effects associated with older age, cancer, and gastrectomy**

✓ **QoL with endeavor and endurance**

<Revised conceptual framework for late effects in older gastric cancer survivors>

CONCLUSIONS

- The findings highlighted the **distinct characteristics of symptom clusters** according to **survival stage** and **the need for psychological symptom management**.
- The study supports the **potential effectiveness of self-management interventions for late effects** and holds promise for **improving the QoL of older gastric cancer survivors** and **reducing societal healthcare costs**.