# Correlation of health-related quality of life with quality of symptom management: based on personalized symptom goals in outpatient palliative care setting

Keita Tagami M.D., Ph.D.[a) b)] Tomofumi Miura M.D., Ph.D.[b) c)] Takashi Kawaguchi RPh, Ph.D.[d)] Yoshihisa Matsumoto M.D., Ph.D.[a)]
Yuki Sumazaki Watanabe M.D.[a)] Yuko Uehara M.D.[a)] Ayumi Okizaki Ph.D.[a)] Yuto Masuda[a) e)] Hiroko Koga[a)] Takuhiro Yamaguchi Ph.D.[f)] Tatsuya Morita M.D.[g)]

[a]Department of Palliative Medicine, National Cancer Center Hospital East, Kashiwa, Japan. [b]Department of Palliative Medicine, Tohoku University School of Medicine, Sendai, Japan.
[c]Division of Biomarker Discovery, Exploratory Oncology Research & Clinical Trial Center, National Cancer Center, Kashiwa, Japan.
[d]Department of Practical Pharmacy, Tokyo University of Pharmacy and Life Sciences, Hachioji, Japan. [e]Japanese Red Cross Koga Hospital, Koga, Japan.
[f] Division of Biostatistics, Tohoku University Graduate School of Medicine, Sendai, Japan.
[g]Department of Palliative and Supportive Care, Palliative Care Team, Seirei Mikatahara General Hospital, Hamamatsu, Japan.

## Background

Symptom management is very important for cancer patients!!

- Strong association between health related quality of life (HRQOL), quality of symptom management and satisfaction with symptom management [1].
- The goal of symptom management should not be based on objective evaluation by medical staff, but patients' own criteria for what constitutes comfortable symptom relief.
- Patient-reported outcomes have been the gold standard for symptom management, including evaluation of its effectiveness and symptom management goal.

Personalized Symptom Goal (PSG) [2]: New indicator for quality of symptom management, based on patients' own goal for comfortable symptom relief.

- Achievement of PSG is a patient reported outcome.
- Achievement of PSG is associated with symptom relief.
- Association between HRQOL and PSG is unknown.

"At what level would you feel comfortable with this symptoms?"

No symptoms 0 1 2 3 4 5 6 7 8 9 10 Worse possible

Achievement of PSG : Symptom intensity on NRS* ≤ PSG [2]

*NRS, numerical rating scale (0-10, 0, symptom absent or best; 10, worst possible)

1) McMillan SC, et al. Oncol Nurs Forum 2002. 2) Hui D, et al. Cancer 2016.

## Study design

- Single-center cross-sectional study using self-reported questionnaire
- Secondary analysis of data from survey investigating cancer-related fatigue, anorexia, and pain.

*Inclusion criteria*

✓ Patients visit our palliative care outpatient clinic questionnaire from April to August of 2016
✓ Patients are over 20 years old and understand Japanese
✓ Patients provide written informed consent.
✓ Patients whose Eastern Cooperative Oncology Group performance status(ECOG- PS) 0 to 3.

*Exclusion criteria*

✓ Patients who cannot be tolerate to answer the questionnaire due to severe symptom burden.

*Questionnaires*

✓ Patients backgrounds.
✓ Edmonton symptom assessment system revised -Japanese (ESAS).
✓ PSG score for pain, tiredness, drowsiness, nausea, lack of appetite and shortness of breath.
✓ Functional Assessment of Cancer Therapy – General (FACT-G).

## Aim

To identify:

Impact of quality of symptom management on HRQOL according to PSG

- Relationship between HRQOL and the number of symptoms not achieving PSG
- Correlations of the number of symptoms not achieving PSG with patients` characteristics
- Differences of HRQOL between patients achieving and not achieving PSG

## Statistical analysis

- Continuous and categorical variables were used to summarize as proportion, mean value with standard deviation (SD) and median value with interquartile range (IQR).
- Pearson's correlation coefficient was used to investigate the relationship between FACT-G total score of the number of symptoms not achieving PSG.
- Association between FACT-G total score and the number of symptoms not achieving PSG with adjustment for ECOG-PS were explored using multivariate linear regression.
- Association between the number of symptoms not achieving PSG and patients` characteristics (age, gender, ECOG-PS, and symptom intensity of depression and anxiety on NRS) were explored using multivariate linear regression. Dummy variables were created for each of gender (Male / Female).
- Student t test was used to compare FACT-G total score between patients achieving and not achieving PSG.
- Significant level was set at $p < 0.05$.

## Results

Total of 140 patients were enrolled (37.1 % female, mean 66.3 years (SD 11.7) (Table 1).

Figure 1 demonstrated the number of not achieving PSG related to low FACT-G total score ($r = -0.20$, $p = 0.03$). In multivariate linear regression, the number of symptoms not achieving was independently associated with low FACT-G total scores (Table 3). Table 4 showed younger patients and patients with higher symptom intensity of depression had more symptoms not achieving PSG concurrently. Not achieving PSG of pain, tiredness, lack of appetite and shortness of breath had significant negative impact on FACT-G total score (Table 5).

**Table 1.** Patients characteristics

| Variables (n = 140) | | n (%) |
|---|---|---|
| Tumor site | Lung | 30 (21.4) |
| | Gastrointestinal*1 | 29 (20.7) |
| | Head and Neck | 22 (15.7) |
| | Hepatobiliary system | 20 (14.3) |
| | Breast | 18 (12.9) |
| | Urinary system | 12 (8.6) |
| | Other | 9 (6.4) |
| Ongoing anticancer treatment*2 | | 71 (50.7) |
| MEDD (mg) | Median (IQR) | 45 (30–100) |
| ECOG-PS | 0 | 14 (10.0) |
| | 1 | 53 (37.9) |
| | 2 | 47 (33.6) |
| | 3 | 26 (18.6) |
| FACT-G Mean(SD) | Total | 60.9 (14.6) |
| | PWB | 15.9 (5.9) |
| | SWB | 14.9 (5.3) |
| | EWB | 14.6 (5.3) |
| | FWB | 14.5 (6.2) |
| painDETECT | Mean (SD) | 7.7 (6.1) |

EWB, emotional well-being; FWB, functional well-being; MEDD, calculation of morphine equivalent daily dose; PWB, physical well-being; SWB, social/family well-being.
*1 Colon, rectum, esophagus, and stomach.
*2 Radiotherapy, chemotherapy and hormone therapy.

**Table 2.** FACT-G total score by the number of symptoms not achieving PSG

| Number of symptoms not achieving PSG | n (%) | FACT-G total score Mean (SD) |
|---|---|---|
| 0 | 23 (16.4) | 65.9 (16.1)) |
| 1 | 18 (12.9) | 64.8 (17.3) |
| 2 | 21 (15.0) | 59.0 (15.3) |
| 3 | 24 (17.1) | 61.0 (11.2) |
| 4 | 19 (13.6) | 62.8 (15.9) |
| 5 | 22 (15.7) | 57.1 (10.6) |
| 6 | 13 (9.3) | 51.5 (12.3) |
| Median (IQR) | 3 (1 – 4.75) | |

**Figure 1.** Relationship between FACT-G total score and the number of symptoms not achieving PSG

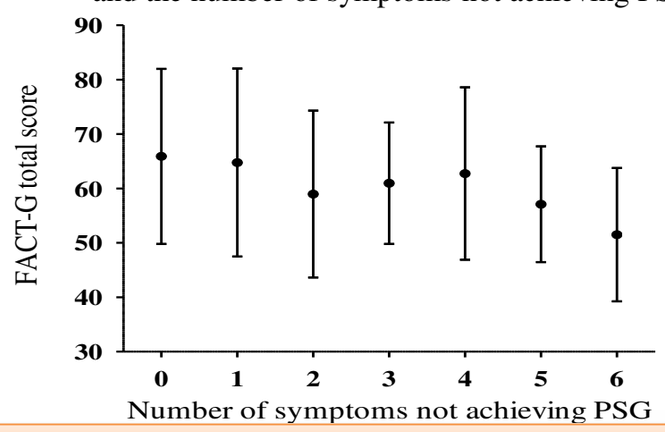


**Table 3.** Multivariate linear regression analysis: Association between FACT-G total score and the number of symptoms not achieving PSG with adjustment for ECOG-PS

| Variable | Coefficient | Standard Error | p |
|---|---|---|---|
| Number of symptoms not achieving PSG | - 0.24 | 0.66 | < 0.01 |
| ECOG-PS | - 0.29 | 1.40 | < 0.01 |

**Table 4.** Multivariate linear regression analysis: Association between the number of symptoms not achieving PSG and patients` characteristics

| Variable | Coefficient | Standard Error | p |
|---|---|---|---|
| 、Age (/year) | -0.20 | 0.01 | 0.02 |
| Gender (Male / Female) | 0.01 | | 0.91 |
| ECOG-PS | 0.06 | | 0.50 |
| Symptom intensity of anxiety | 0.25 | 0.06 | < 0.01 |
| Symptom intensity of depression | 0.14 | | 0.31 |

**Table 5.** ESAS, PSG and PSG achievement. FACT-G total score between patients achieving and not achieving PSG

| Symptom | ESAS Median (IQR) | PSG Median (IQR) | Achievement of PSG | FACT-G total score Achieving PSG Mean (SD) | FACT-G total score Not achieving PSG Mean (SD) | p |
|---|---|---|---|---|---|---|
| Pain | 3 (1 - 6) | 2 (0 – 3) | 36.4 % | 64.6 ± 15.5 | 58.9 ± 13.8 | 0.04 |
| Tiredness | 3 (2 – 5) | 2 (0 – 3) | 35.7 % | 65.0 ± 15.2 | 58.6 ± 13.8 | 0.02 |
| Drowsiness | 3 (1 – 5) | 2 (0 – 3) | 45.0 % | 61.8 ± 16.1 | 60.0 ± 13.2 | 0.50 |
| Nausea | 0 (0 – 1) | 0 (0 – 1) | 80.0 % | 61.7 ± 14.7 | 57.3 ± 13.8 | 0.22 |
| Lack of appetite | 2 (0 – 5) | 1 (0 – 3) | 58.6 % | 63.4 ± 15.3 | 57.1 ± 12.8 | 0.02 |
| Shortness of breath | 1 (0 – 4) | 1 (0 – 2) | 61.4 % | 63.0 ± 15.3 | 57.5 ± 12.9 | 0.04 |
| Depression | 2 (0 – 4) | | | | | |
| Anxiety | 2 (1 – 5) | | | | | |
| Well being | 4 (3 – 6) | | | | | |

## Conclusion

Poor quality of symptom management negatively influences on patient's HRQOL!!

*The results revealed:*

1) Increased the number of symptoms not achieving PSG makes HRQOL worse in cancer patients.
2) Patients with younger age and higher symptom intensity of depression have potential risk to experience more symptoms concurrently.
3) Poor management of pain, tiredness, lack of appetite and shortness of breath have negative influences on patients` HRQOL significantly.
   - Patients with advancer cancer are easy to experiences multiple concurrent symptoms [3].
   - Healthcare providers should be screening and manage any concurrent symptoms for improving patient's HRQOL.

*Present study had several limitations;*

- Single center study
- The potent difficulty of concept as "comfortable with this symptom" for Japanese patients.
- PSG for depression, anxiety and well-being were excluded from the analysis.

3) Omran S, et al. Asian Pac J Cancer Prev 2017.

*MASCC/ISOO annual meeting in VIENNA, Austria 2018.*
*Thank you. E-mail: keita.tagami.d7@tohoku.ac.jp*