

Translation and Validation of Myeloproliferative Neoplasm-Symptom Assessment Form (MPN-SAF)-Total Symptom Score (MPN-SAF TSS) Filipino Version

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ABSTRACT

Background and Objective. Myeloproliferative disorders are characterized by symptoms that can potentially impair the quality of life of our Filipino patients. The Myeloproliferative Neoplasm Symptom Assessment Form-Total Symptom Score (MPN-SAF TSS) is used to determine symptoms at baseline and during treatment. A validated Filipino version of this questionnaire would be a helpful tool in assessing the burden of symptoms of Filipino patients with MPN. Understanding the symptom burden and symptom experience of patients with MPN is needed in developing a comprehensive wholistic management plan that addresses the physical and emotional aspects of a chronic disease such as MPN. This study aimed to translate the MPN-SAF TSS to the Filipino language.

Methods. Translation, validation, and reliability testing of the MPN-SAF TSS was done following the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) guidelines for linguistic translation and validation.

Results. No major discrepancies were found on forward and backward translation of the MPN-SAF TSS tool. The 0-10 scoring scale (where 0 = absent/as good as it can be and 10 = worst imaginable/daily/as bad as it can be) was deemed appropriate and was retained. Content and face validity as evaluated by Filipino hematologists showed that majority of the translated questions were relevant. Some words were further improved according to their valid recommendations. Ten MPN patients voluntarily answered the updated Filipino version of the questionnaire for face validity and cognitive debriefing was done to further refine the translation according to the patient's perspective. The back translation was identical to the original versions of MPN-SAF TSS.

Validity and reliability testing of the revised and translated MPN-SAF TSS among 30 patients with MPN demonstrated that the MPN-SAF TSS Filipino version was conceptually equivalent with the English version, with good internal consistency (Cronbach's alpha=0.89); excellent reliability with an intraclass correlation coefficient of 0.98 and convergent validity of r=0.77.

Conclusion. The Filipino version of the MPN-SAF TSS was demonstrated to be a valid and reliable tool in evaluating the symptom burden of Filipino patients with MPN.

Keywords: myeloproliferative neoplasm, symptom assessment form, total symptom score, Filipino, translation, validation



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INTRODUCTION

Myeloproliferative neoplasms (MPNs) are heterogeneous group of disorders characterized by cellular proliferation of one or more hematologic cell lines. Philadelphia-negative MPN patients with either Polycythemia Vera (PV), Essential Thrombocythosis (ET) or Myelofibrosis (MF) suffer a series of objective problems related to the disease activity as originally described by William Dameshek in 1951.¹ The impact of Janus Kinase-2 (JAK-2) mutations, inhibitors and other targeted drugs in the pipeline for MPN makes this field interesting. Because of this, MPN experts saw the need to create an objective tool to measure the symptom burden in these diseases. Mesa et al. developed a patient reported outcome (PRO) instrument called the Myelofibrosis Symptom Assessment Form (MF-SAF) for therapeutic clinical trials which involved 458 MF patients. This 20-item instrument MF-SAF measured the symptoms reported by >10% of MF patients, including their quality of life (QOL).² This questionnaire was then applied to other clinical trials assessing the efficacy and safety of JAK-2 inhibitors (COMFORT trials).³ The same tool was further expanded by Scherber R et al. to include PV and ET patients resulting to a 28-item Myeloproliferative Neoplasm-Symptom Assessment Form (MPN-SAF). The components included items covering vascular and cytokine symptoms, constitutional symptoms, spleen-related symptoms, brief fatigue inventory, and quality of life. Their study proved that MPN-SAF can strongly function as a single instrument of patient-reported symptoms for the entire spectrum of MPN patients.⁴ It has been translated and validated in different languages such as French, German, Swedish, Italian, Dutch, Spanish, Portuguese, Mandarin, Japanese, Hebrew, and Arabic.⁵⁻⁸ From this, the Myeloproliferative Neoplasm Symptom Assessment Form-Total Symptom Score (MPN-SAF TSS or MPN-10) (Appendix A) was derived. This is an abbreviated version consisting of a 10-item questionnaire focusing on the most clinically important and characteristic symptoms of MPN.⁹ MPN-TSS has also been translated and validated in several languages including Bulgarian, Czech, Danish, Dutch, German, Hebrew, Hungarian, Japanese, Korean, Malay, Russian, Spanish, Simplified and Traditional Chinese.¹⁰

The most recent National Comprehensive Cancer Network (NCCN) guidelines recommend this tool MPN-SAF TSS or MPN-10 for monitoring symptom status during treatment, which can facilitate in driving discussions with patients on how they are feeling.¹¹ In the Philippines, currently, there is no official translation and validation of this questionnaire in Filipino language, hence this study.

METHODS

Study Population and Design

This is a multi-center prospective validation study. The investigators identified consecutive MPN patients by purposive sampling from the patient census of two private and two government hospitals.

The following steps were taken using the ISPOR guidelines:¹² First, preparation, wherein the investigators obtained permission from the author to translate the original instrument and utilize the tool for the study. All the questionnaires used in this study were permitted by the original authors before the start of the study. The next step is forward translation to the Filipino (Tagalog) version which emphasizes conceptual rather than literal equivalence when trying to achieve an appropriate reading level.¹³ This was followed by reconciliation by at least two (2) hematologists who are native speakers of the Filipino language and one (1) of the investigator to assess if the Filipino version captured the medical state through the translated terms. This was carried out through a meeting to review the forward translations. They discussed and came up with a resolution in case of disagreements. This is a qualitative assessment. The questionnaire was then back-translated to English and reviewed for appropriateness. The next step was harmonization wherein investigators and back translators representing each language, compared all translations with each other and the original. [Appendix VI] Cognitive debriefing was done by asking 5-8 respondents drawn from the target population to rate the instructions and items on the scale whether clear or unclear using a comprehension index of 0 to 100%. Finally, the researchers reviewed the results from cognitive debriefing and identified translation modifications necessary for improvement.

Validation using Content Validity and Convergent Validity

A minimum of three hematologists were asked to rate instrument items in terms of clarity and its relevance to the construct underlying the study as per the theoretical definitions of the construct itself and its dimensions on a 4-point ordinal scale (1 – not relevant, 2 – somewhat relevant, 3 – quite relevant, 4 – highly relevant). Content validity index for relevance and clarity of each item (I-CVIs) was determined as well as the scale-level (S-CVI).¹⁴

Convergent validity was done to assess the MPN-SAF TSS Filipino version compared with the existing standard measurement for symptom burden which was the MDASI-Filipino version. A total of 30 patients with myeloproliferative neoplasm were recruited. A statistically significant result or scores would mean that there was convergent validity.¹⁵

Reliability Testing (Test-Retest and Correlational Analysis)

To determine if the MPN-SAF TSS Filipino version will elicit the same answers over time, this was administered twice to the same respondents over a 3-day time interval. Answers were analyzed using the Test-Retest method.¹⁵

To determine if the same answers are supplied for both English and Filipino, these instruments were administered to the same set of respondents within the same day one at a time and were analyzed through correlation analysis. Interpretation of results were as follows; Weak, Moderate, Strong or Perfect associations following these ranges: 0.00-0.20 – very weak association; 0.21-0.40 – weak association; 0.41-0.60 – moderate association; 0.61-0.80 – strong association; 0.81-1.00 – very strong association.

A total of 30 patients with MPN were recruited to check linguistic and conceptual equivalence of MPN-SAF TSS Filipino and English versions. Reliability testing was done using test and re-test and internal consistency by getting the intraclass correlation and Cronbach's alpha.¹⁵⁻¹⁷

Data Analysis

Internal consistency was determined to know the extent to which the scores for the items on a scale correlate with one another. This was done through computation of Cronbach's alpha which is set at ≥ 0.70 as an acceptable level.

Test and retest reliability measures the reliability of a test measured over time. It was evaluated by computing Pearson's correlation coefficient. A value of ≥ 0.7 to < 0.8 means an acceptable reliability; ≥ 0.8 to < 0.9 is good reliability; ≥ 0.9 excellent reliability and 1 as perfect reliability.¹³

Convergent validity was assessed by comparing the MPN-SAF Filipino version with the existing standard measurement for symptom burden which is the MDASI-Filipino version. A minimum of three patients per item of the MPN-SAF TSS were selected to respond to the questionnaire. A statistically significant result or scores would mean that there is convergent validity.

Ethical Considerations

This protocol and the informed consent document, and any subsequent modifications were reviewed and approved by the DOH-SJREB with protocol approval number SJREB-2021-91. All documents were submitted to the four medical centers' Institutional Review Board (IRB) and were likewise approved.

RESULTS

There were no major discrepancies in the forward and backward translation. The reconciliation team composed of the investigators and hematologists from the MPN special interest group saw some symptoms that may be represented by different Filipino words such as "Inactivity" translated to *"hindi aktibo/ hindi pagkilos/ hindi makakilos/ matamlay/*

malata." Another difficult symptom is *"bone pain"* which can be *"kirot/ sakit sa buto."* The grading was also discussed, and they found it appropriate to have a scale of 1-10 rather than 1-5 or qualitative measures like mild, moderate, severe. The purpose of the 1-10 scale was to have a sum of 100, and it would be the basis of symptom burden severity. These were all considered in the process.

Face validity was also evaluated by the experts and their remarks and recommendations were noted. For item number 1 of MPN/TSS-10, one expert suggested rephrasing to *"mangyaring tantiyahin ang antas ng pagiging mapapagurin sa nakalipas na 24 oras sa pamamagitan ng pagbilog ng isang numero na kumakatarwan sa antas ng pakapagod o pagkahapo"* which was accepted. Another expert commented that instead of 24 hours, why not extend to days, weeks or months, the context of which we cannot alter anymore from the original version. For item number 3, one expert commented that "abdominal discomfort" is synonymous to "abdominal pain" or "spleen pain." It encompasses all discomfort regardless of whether it might be due to spleen enlargement or bloatedness which is not necessarily that painful but a vague discomfort. For item number 4, an expert suggested to specify *"hindi pagiging aktibo"* with *"malata o matamlay"* which was more explicit, thus adapted. Another commented that it may be better to specify that the inactivity is due to tiredness or mental depression. For item number 5, an expert suggested rephrasing the question to *"problema o pagkakaroon ng limitasyon sa konsentrasyon kumpara sa bago ako nagkaroon ng MPD"* and another expert commented that the doctor may need some examples as to what problems with concentration mean, like is it the same as forgetfulness. The authors opted to retain *"kawalan ng konsentrasyon – kumpara noong bago ang aking MPD"* which was simpler and easily understandable by the patients. For item number 8, one expert suggested to rephrase the question to *"pananakit ng buto-buto (kumakalat, hindi kasama ang pananakit ng kasu-kasuan)"* which was more reflective and verbatim of the English version, thus rephrased. And for item number 10, one expert suggested restating the question to *"hindi sinasadyang pagbawas o paghaba ng timbang sa nakalipas na 6 na buwan"* which was adapted.

Face validity and cognitive debriefing of 10 patients with MPN was done to evaluate the revised Filipino questionnaire. Each of the patients were interviewed regarding their understanding of every item on the form, including the instructions and choices of response to every symptom, how does each appeal and apply to their daily lives, and any suggestions to improve it. All of the patients with MPN answered completely and unanimously remarked that all items, instructions, and response choices were clear and understandable and that there were no revisions necessary. The researchers decided to maintain the 11-scoring scale (where 0 = absent/as good as it can be up to 10 = worst imaginable/daily/as bad as it can be) linear analog self-assessment scale as this is the most commonly used and accepted symptomatology rating system. Cognitive debriefing

was important to determine if the words reflect the symptoms that the patient feels. Six out of 10 patients were very satisfied with the translation and rating scale. Four out of 10 were quite satisfied and had minor suggestions. For item 5, where it states “*kawalan ng konsentrasyon kumpara noong bago ang aking MPD*,” they suggested that MPD be changed to “*sakit sa dugo*” because lay people are not aware of the meaning of MPD. For item 6, where it states, “night sweats” and was translated to “*pagiging parwisin sa gabi*,” they suggested that they also feel excessive sweating even at daytime, hence it should be “*sobrang pagpapawis lalo na sa gabi*.” And lastly for item 8, “bone pain” translated as “*pagkirot ng mga buto*,” patients suggested it be changed to “*pananakit ng mga buto*” because “*kirot*” is more of a sudden and sharp pain which is not what they feel, they described it as steady and deep pain.

Ten hematologists were invited to examine the content and face validity of the translated MPN-SAF TSS. Each consultant appraised every question's relevance as follows: 1 – not relevant, 2 – somewhat relevant, 3 – quite relevant, and 4 – highly relevant. Based on the item level content validity

index score (I-CVI), all items scored equal or greater than 0.97 and the UA is 0.70 which is acceptable.

Validity and Reliability Testing

Demographic Profile of the Participants

Thirty patients with MPN were recruited for this step. Table 1 illustrates the demographic characteristics of the respondents. The mean age of the respondents was 54.60 years old (SD=11.40), and the majority were females (56.67%). Seventeen (57%) were chronic patients already, and majority (73%) were being treated in private healthcare facilities.

Linguistic Equivalence

The descriptive statistics of the MPN-SAF TSS items and overall score in both English and Filipino versions are presented in Table 2. All mean differences were less than ± 0.25 . Comparative analysis of the mean scores also indicated that all items were not statistically different between the Filipino and the English versions. Moreover, the comparative analyses

Table 1. Demographic Characteristics of Participants according to type of Myeloproliferative Neoplasia for Phase II (N = 30)

Characteristics	Type of Myeloproliferative Neoplasia			Total (N = 30)
	Polycythemia Vera (n = 12)	Essential Thrombocytopenia (n = 10)	Myelofibrosis (n = 8)	
Age (Mean years, SD)	56.07 (14.59)	56.7 (14.60)	63.37 (10.52)	54.60 (11.40)
Sex (n, %)				
Male	4 (33.33)	5 (50)	4 (50)	13 (43.33)
Female	8 (66.66)	5 (50)	4 (50)	17 (56.67)
Disease status				
Newly diagnosed	5 (42)	4 (40)	4 (50)	13 (43)
Chronic patients	7 (58)	6 (60)	4 (50)	17 (57)
Healthcare setting				
Private	10 (83)	7 (70)	5 (63)	22 (73)
Public	2 (17)	3 (30)	3 (37)	8 (27)
Educational attainment				
Primary	0	3 (30)	2 (25)	5 (17)
Secondary	2 (16)	4 (40)	2 (25)	8 (26)
Vocational	4 (33)	3 (30)	0	7 (23)
Tertiary	6 (50)	0	4 (50)	10 (33)

Table 2. Descriptive Statistics of MPN-SAF Total Symptom Score (MPN-SAF TSS) in English and Filipino Versions (N = 30)

Items	Mean (SD) of Filipino Version	Mean (SD) of English Version	Mean Difference (SD) of Scores	p-value
Item 1 Fatigue	3.30 (2.87)	3.20 (2.73)	0.10 (0.61)	0.375
Item 2 Early satiety	2.87 (3.18)	2.90 (3.37)	-0.03 (1.27)	0.887
Item 3 Abdominal discomfort	1.83 (2.84)	1.73 (2.91)	0.10 (0.61)	0.375
Item 4 Inactivity	2.57 (3.07)	2.70 (3.28)	-0.13 (1.43)	0.614
Item 5 Problems with concentration	1.77 (1.83)	1.67 (1.92)	0.10 (1.92)	0.264
Item 6 Night sweats	1.70 (1.80)	1.67 (1.81)	0.03 (0.93)	0.845
Item 7 Itching	2.33 (2.52)	2.37 (2.66)	-0.03 (0.81)	0.823
Item 8 Bone Pain	2.00 (2.72)	2.03 (2.91)	-0.03 (1.13)	0.873
Item 9 Fever	1.10 (2.45)	1.23 (2.54)	-0.13 (0.78)	0.355
Item 10 Weight loss	2.33 (2.97)	2.17 (2.93)	0.17 (0.75)	0.231
Overall Scale Score	2.18 (1.84)	2.17 (1.94)	0.01 (0.36)	0.839

Table 3. Association of Individual Items with Overall Questionnaire Score in the Filipino and English Versions of MPN-SAF Total Symptom Score (N = 30)

Subscales Overall MPN-SAF TSS	Filipino Version		English Version	
	r_s -value	p-value	r_s -value	p-value
<i>Item 1 Fatigue</i>	0.633	0.001	0.667	0.001
<i>Item 2 Early satiety</i>	0.726	0.001	0.700	0.001
<i>Item 3 Abdominal discomfort</i>	0.674	0.001	0.645	0.001
<i>Item 4 Inactivity</i>	0.829	0.001	0.819	0.001
<i>Item 5 Problems with concentration</i>	0.776	0.001	0.696	0.001
<i>Item 6 Night sweats</i>	0.688	0.001	0.703	0.001
<i>Item 7 Itching</i>	0.647	0.001	0.670	0.001
<i>Item 8 Bone Pain</i>	0.653	0.001	0.600	0.001
<i>Item 9 Fever</i>	0.522	0.003	0.593	0.001
<i>Item 10 Weight loss</i>	0.563	0.001	0.510	0.004

of the overall mean score were not statistically different between the two versions of the MPN-SAF TSS ($p > 0.05$).

Conceptual Equivalence

Table 3 presents the correlation analyses of the association of the different items with the overall MPN-SAF TSS in both Filipino and English versions. The correlation coefficients in the MPN-SAF TSS Filipino version ranged from 0.52 to 0.83, while the coefficients ranged from 0.51 to 0.82 for the English version of the MPN-SAF TSS.

Reliability Analyses

Analysis of the MPN-SAF TSS was evaluated using both stability and internal consistency measures. Stability, for this part, was analyzed after three days of the initial administration, and a correlation coefficient of 0.97 was estimated ($p = 0.001$) indicative of excellent reliability. In addition, intraclass correlation (ICC) coefficient of the MPN-SAF TSS between the two timeframes of administration was 0.989 (95% CI=0.96 to 0.99) which further supports the excellent reliability of the MPN-SAF TSS over a three-day period or interval. On a different note, the Cronbach's alpha values, which are measures of internal consistency, for the Filipino and English versions were 0.89 and 0.90, respectively. Comparative analyses indicated that these values were not statistically different ($p = 0.30$), and these coefficients indicate good internal consistency for both versions of the instrument.

Convergent Validity

Convergent validity was evaluated through the association of the overall mean score of the MPN-SAF TSS with the MD Anderson Symptom Inventory Form (MDASI), another questionnaire focusing on cancer-related symptoms which was hypothesized to be highly associated with the MPN-SAF TSS. Analyses indicated a high correlation between the MDASI score and the MPN-SAF TSS score Filipino version ($r = 0.77$, $p = 0.001$). This correlation suggests the good convergent validity of the MPN-SAF TSS Filipino version.

The final Filipino version of MPN-SAF TSS was translated and validated (Appendix B).

DISCUSSION

In this study, the MPN-SAF TSS was translated and validated to Filipino version following international guidelines. Though most Filipinos are fluent in English, a Filipino (Tagalog) version is useful to be able to capture the expression of symptoms in the vernacular. The symptoms with the highest mean scores were fatigue ($\bar{x} = 3.30$, $SD = 2.87$), early satiety ($\bar{x} = 2.87$, $SD = 3.18$), inactivity ($\bar{x} = 2.57$, $SD = 3.07$), itching ($\bar{x} = 2.33$, $SD = 2.52$), weight loss ($\bar{x} = 2.33$, $SD = 2.97$), bone pain ($\bar{x} = 2.00$, $SD = 2.72$), and abdominal discomfort ($\bar{x} = 1.83$, $SD = 2.84$). In contrast, fever ($\bar{x} = 1.10$, $SD = 2.45$), problems with concentration ($\bar{x} = 1.77$, $SD = 1.83$), and night sweats ($\bar{x} = 1.70$, $SD = 1.80$) were the symptoms with the lowest mean symptom burden scores. A prospective study assessing the effectiveness of interferon-alfa by Merup et al. showed that PV and ET patients have baseline symptoms of headache, muscle pain, fatigue, and depression reported by 30% of patients.¹⁸ One of the largest on-line survey studies done by Mesa et al. included 1,179 MPN patients, demonstrated fatigue to have the highest frequency among the symptoms at 80.7%, followed by pruritus (52.2%), night sweats (49.2%), bone pain (43.9%), fever (13.7%), and weight loss (13.1%). This survey study was done using three validated instruments (Brief Fatigue Inventory, Functional Assessment of Cancer Therapy-Anemia, and Godin Leisure Time Activity Score). The study showed MPN patients suffer from significant fatigue compared to published normal controls, provided baseline information on constitutional symptoms present in MPN patients, and underscored the need to incorporate these in quality-of-life assessment.¹⁹

The presence of constitutional symptoms has been included as negative predictor of survival in the prognostic scoring system created by the International Working Group for Myelofibrosis Research and Treatment.²⁰ An accurate

and reliable measure of symptom profile is a crucial element for the comprehension of the therapies' clinical benefits. Previous researchers stated the scarcity of data about health-related quality of life among hematologic cancers compared with solid malignancies.²¹ This is inopportune because quality of life plays a critical function in MPN disease burden, and consideration of health-related quality of life affirmatively affect clinical outcomes.¹⁹

As stated earlier, the Myelofibrosis-SAF was expanded by Scherber R et al. to include PV and ET patients resulting to a total of 28-item MPN-SAF, with eight more items included that is headache, difficulty in concentration, dizziness, numbness, difficulty sleeping, sexual desires, and depression. A total of 402 MPN patients were taken into this validation study. Results showed that MPN-SAF displayed a strong association with European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C30 (EORTC QLQ-C30) subscales, together with physical, role, cognitive, social, emotional, and quality-of-life functioning, as well as specific symptoms common to malignancy, thus making it a comprehensive and reliable instrument to evaluate symptoms associated with all types of MPNs.⁴ This has been translated and validated in different languages around the globe and therefore can precisely reflect the symptom burden in different patient populations with the straightforwardness of the native dialect.⁸ The prevalence of fatigue was 76%-92.4%, greatest in patients with Myelofibrosis, followed by those with PV, then ET.²²⁻²⁵ In a recent landmark survey, disease related symptoms were reported ≥ 1 year before diagnosis in 49% of patients with MF, 61% of patients with PV, and 58% of patients with ET. These MPN-related symptoms impeded patient's daily tasks, reduced quality of life, and overall productivity.²⁶

The challenge on the utilization of MPN-SAF in clinical practice is the considerable length of the survey making it more tedious to accomplish on each and every patient's visit. This was addressed by the study of Emanuel et al. wherein an abbreviated instrument consisting of the most important and representative MPN symptoms were included. The new PRO-tool included nine items (concentration, early satiety, inactivity, night sweats, itching, bone pain, abdominal discomfort, weight loss, and fever) chosen from the 17-item MPN-SAF and one item for fatigue, completing the 10-item MPN-SAF TSS. This was validated and was compared with other alternate measures of disease burden such as MPN-SAF and EORTC-QLQ C30 with a good correlation.⁹ MPN-TSS has also been translated and validated in several languages worldwide.¹⁰

In the recent guidelines of the National Comprehensive Cancer Network (NCCN), it is recommended to use MPN-SAF TSS for monitoring symptom status during the course of treatment. With the advent of JAK-2 inhibitors which is effective in decreasing symptoms in MPN patients hence improving quality of life, symptom monitoring is included as a standard of care in MPN patients. Symptom response

requires $\geq 50\%$ reduction in the previous scores. Changes in symptom status coupled with other laboratory parameters could be a sign of disease progression, therefore, prompt evaluation of treatment efficacy or disease status is needed.²⁷ It is therefore fundamental to have a comprehensive MPN-SAF TSS instrument translated in native Filipino language to provide a practically accurate assessment of symptom burden and guide subsequent therapy decisions in our local group, both in private and public medical settings.

CONCLUSION

The Filipino version of the MPN-SAF TSS was demonstrated to be a valid and reliable tool in evaluating the symptom burden of Filipino patients with MPN. A deeper understanding of the symptom experience of the patients coupled with the use of a validated Filipino version of the MPN-SAF TSS will help enhance the physician-patient interaction especially when discussing management options and monitoring the course of the disease.

Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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REFERENCES

1. Dameshek W. Some speculations on the myeloproliferative syndromes. *Blood*. 1951;6(4):372-5. PMID: 26869302.
2. Mesa R, Schwager S. The Myelofibrosis Symptom Assessment Form (MF-SAF): an evidence-based brief inventory to measure quality of life and symptomatic response to treatment in myelofibrosis. *Leuk Res*. 2009;33(9):1199-203. doi: 10.1016/j.leukres.2009.01.035. PMID: 19250674. PMCID: PMC4419687.
3. Mesa RA, Gotlib J, Gupta V, Catalano JV, Deininger MW, Shields AL, et al. Effect of ruxolitinib therapy on myelofibrosis-related symptoms and other patient-reported outcomes in COMFORT-I: a randomized, double-blind, placebo-controlled trial. *J Clin Oncol*. 2013;31(10):1285-92. doi: 10.1200/JCO.2012.44.4489. PMID: 23423753 PMCID: PMC4979167.
4. Scherber R, Dueck AC, Johansson P, Barbui T, Barosi G, Vannucchi AM, et al. The Myeloproliferative Neoplasm Symptom Assessment Form (MPN-SAF): International prospective validation and reliability trial in 402 patients. *Blood*. 2011;118(2):401-8. doi: 10.1182/blood-2011-01-328955. PMID: 21536863.
5. Scherber R, Barbui T, Vannucchi AM, Passamonti F, Barosi G, Rambaldi A, et al. Prospective validation of the Italian Myeloproliferative Neoplasm Symptom Assessment Form (MPN-SAF: Italian) in 186 MPN patients. *Blood*. 2010;116(21):5060. doi: 10.1182/blood-2011-01-328955. PMID: 21536863.
6. Guaraná M, Soares A, Dumas A, Biasoli I, Solza C. Myeloproliferative Neoplasm Symptom Assessment Form - Total Symptom Score (MPN-SAF TSS) questionnaire: translation, cultural adaptation and validation to Brazilian Portuguese. *Hematol Transfus Cell Ther* [Internet].

- 2022;44(3):321–7. Available from: <http://dx.doi.org/10.1016/j.htct.2020.10.966>
7. Johansson PL, Andreasson B, Scherber R, Dueck A, Samuelsson J, Birgegård G, et al. Prospective validation of the Swedish Myeloproliferative Neoplasm Symptom Assessment Form (MPN-SAF: Swedish) in 114 MPN patients. *Blood*. 2010;116(21):5053. doi: 10.1182/blood.v116.21.5053.5053.
8. Scherber R, Dueck AC, Johansson P, Barbui T, Barosi G, Vannucchi AM, et al. The Myeloproliferative Neoplasm Symptom Assessment Form (MPN-SAF): international prospective validation and reliability trial in 402 patients. *Blood* [Internet]. 2011;118(2):401–8. Available from: <http://dx.doi.org/10.1182/blood-2011-01-328955>.
9. Emanuel RM, Dueck AC, Geyer HL, Kiladjian J-J, Slot S, Zweegman S, et al. Myeloproliferative neoplasm (MPN) symptom assessment form total symptom score: prospective international assessment of an abbreviated symptom burden scoring system among patients with MPNs. *J Clin Oncol*. 2012;30(33):4098–103. doi: 10.1200/JCO.2012.42.3863. PMID: PMC4872304 PMID: 23071245.
10. Eremenco S, Oke-Osi H. Translation and linguistic validation of the modified Myeloproliferative Neoplasm Symptom Assessment Form–Total Symptom Score (MPN-SAF TSS) for use in 26 countries. *Value in Health*. 2015;18(7):A71–2. doi: 10.1016/j.jval.2015.09.1252.
11. Treatment by cancer type [Internet]. National Comprehensive Cancer Network Myeloproliferative Neoplasm Guidelines Version 2. [cited 2023 May 25]. Available from: https://www.nccn.org/guidelines/category_1
12. Wild D, Grove A, Martin M, Eremenco S, McElroy S, Verjee-Lorenz A, et al. Principles of good practice for the translation and cultural adaptation process for Patient-Reported Outcomes (PRO) measures: report of the ISPOR Task Force for Translation and Cultural Adaptation. *Value in Health*. 2005;8(2):94–104. doi: 10.1111/j.1524-4733.2005.04054.x
13. Translation & linguistic validation [Internet]. Quality Metric | We Measure Health. 2021 [cited 2023 May 25]. Available from: <https://www.qualitymetric.com/translation-linguistic-validation/>
14. Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar A-R. Design and implementation content validity study: development of an instrument for measuring patient-centered communication. *J Caring Sci*. 2015;4(2):165–78. doi: 10.15171/jcs.2015.017. PMID: 26161370. PMID: PMC4484991.
15. Bolarinwa O. Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Niger Postgrad Med J*. 2015;22(4):195. doi: 10.4103/1117-1936.173959. PMID: 26776330.
16. McMillan GP, Hanson TE. Sample size requirements for establishing clinical test-retest standards. *Ear Hear*. 2014;35(2):283–6. doi: 10.1097/01.aud.0000438377.15003.6b. PMID: 24351613.
17. Schmidt ME, Steindorf K. Statistical methods for the validation of questionnaires--discrepancy between theory and practice. *Methods Inf Med*. 2006;45(4):409–13. PMID: 16964357.
18. Merup M, Aberg W, Löfvenberg E, Svensson E, Engman K, Paul C, et al. Symptoms, symptom distress and health-related quality of life in patients with polycythaemia vera or essential thrombocythaemia during treatment with interferon-alpha. *Acta Oncol*. 2002;41(1):50–5. doi: 10.1080/028418602317314064. PMID: 11990518.
19. Mesa RA, Niblack J, Wadleigh M, Gilliland DG, Verstovsek S, Kantarjian H, et al. The burden of fatigue and quality of life in myeloproliferative disorders (MPDs): An international Internet based survey of 1179 MPD patients. *Blood*. 2006;108(11):4872. doi: 10.1002/cncl.22365. PMID: 17123268.
20. Cervantes F, Dupriez B, Pereira A, Passamonti F, Reilly JT, Morra E, et al. New prognostic scoring system for primary myelofibrosis based on a study of the International Working Group for Myelofibrosis Research and Treatment. *Blood*. 2009;113(13):2895–901. doi: 10.1182/blood-2008-07-170449. PMID: 18988864.
21. Scott NW, Fayers P, Aaronson NK, Bottomley A, de Graeff A, Groenvold M, et al. EORTC QLQ-C30 Reference Values Manual. 2nd ed. Brussels, Belgium: EORTC Quality of Life Group, 2008. p. 427.
22. Mesa R, Kantarjian H, Tefferi A. Evaluating the serial use of the Myelofibrosis Symptom Assessment Form for measuring symptomatic improvement: performance in 87 myelofibrosis patients on a JAK1 and JAK 2 inhibitor (INCB018424) clinical trial. *Cancer*. 2011;117:4869–77. doi: 10.1002/cncl.26129. PMID: PMC4160798; PMID: 21480207.
23. Xu J, Xu Z, Wang J. The assessment of symptomatic burden among Ph/BCR-ABL negative myeloproliferative neoplasm patients. *Zhonghua Xue Ye Xue Za Zhi*. 2016;37(1):26–9. doi: 10.3760/cma.j.issn.0253-2727.2016.01.005. PMID: 26876249. PMID: PMC7342297.
24. Anderson LA, Titmarsh GJ, Dueck AC, Duncombe A, Mesa RA, Scherber RM, et al. Myeloproliferative neoplasm patient symptom burden and quality of life: Evidence of significant impairment compared to controls using multivariate analysis. *Blood*. 2015;126(23):1620. doi: 10.1002/ajh.24098. PMID: 26113113.
25. Johansson P, Mesa R, Scherber R. Associations between quality of life and clinical parameters in patients with myeloproliferative neoplasms. *Leuk Lymphoma*. 2012;53(3):441–4. doi: 10.3109/10428194.2011.619608. PMID: 21883029.
26. Mesa R, Miller CB, Thyne M. Myeloproliferative Neoplasms (MPNs) have significant impact on patient's overall health and productivity: The MPN landmark survey. *BMC Cancer*. 2016;16. doi: 10.1186/s12885-016-2208-2. PMID: 26922064. PMID: PMC4769833.
27. Harrison CN, Koschmieder S, Foltz L, Guglielmelli P, Flindt T, Koehler M, et al. The impact of myeloproliferative neoplasms (MPNs) on patient quality of life and productivity: results from the International MPN Landmark Survey. *Ann Hematol*. 2017;96(10):1653–65. doi: 10.1007/s00277-017-3082-y.

APPENDICES

Appendix A

Myeloproliferative Neoplasm Symptom Assessment Form Total Symptom Score (MPN-SAF TSS)

Symptom	1 to 10 (0 if absent) ranking 1 is most favorable and 10 least favorable
Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your WORST level of fatigue during past 24 hours*	(No fatigue) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)
Circle the one number that describes how, during the past week how much difficulty you have had with each of the following symptoms	
Filling up quickly when you eat (early satiety)	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)
Abdominal discomfort	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)
Inactivity	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)
Problems with concentration – Compared to prior to my MPD	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)
Night sweats	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)
Itching (pruritus)	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)
Bone pain (diffuse, not joint pain or arthritis)	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)
Fever (>100°F)	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Daily)
Unintentional weight loss last 6 months	(Absent) 0 1 2 3 4 5 6 7 8 9 10 (Worst imaginable)

Appendix B

Final MPN-SAF TSS/MPN-10 Filipino Version
Pagtatasa sa Sintomas ng Myeloproliferative Neoplasms (MPN)
Myeloproliferative Neoplasm-Symptom Assessment Form (MPN-SAF)
Kabuuang Iskor ng Sintomas (MPN-SAF TSS/MPN-10)

Bilugan ang isang numero na naglalarawan kung paano, sa nakalipas na linggo gaano kang nahirapan sa bawat sumusunod na sintomas	
Sintomas	1 hanggang 10 (0 kung wala, 1 kung pinaka kanais-nais at 10 pinakamalala posibleng maramdaman)
Mangyaring tantyahin ang antas o lebel ng iyong PAGOD o HAPO sa nakalipas na 24 oras sa pamamagitan ng pagbilog ng isang numero pinaka naglalarawan ng lebel ng pakapagod o pagkahapo.	(Walang pagkapagod) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)
Madaling napupuno ang tiyan kapag kumakain (maagang pagkabusog)	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)
Hindi maganda ang pakiramdam ng tiyan	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)
Hindi pagiging aktibo (malata/matamlay)	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)
Kawalan ng konsentrasyon – kumpara noong bago ang aking sakit sa dugo	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)
Sobrang pagpapawis lalo na sa gabi	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)
Pangangati	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)
Pananakit ng mga buto (kumakalat hindi kirot sa kasu-kasuan o arthritis)	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)
Lagnat (>38°C o >100°F)	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (araw-araw)
Hindi sinasadyang pagbaba ng timbang sa nakalipas na 6 na buwan	(Wala) 0 1 2 3 4 5 6 7 8 9 10 (pinakamalala)

Sasagutin lamang ng iyong doktor: Sumahin ang iskor ng sintomas ng pasyente: _____