# **Supplementary material 1. MACPT conversation tool word categorization**

| **Key: Overlap of categories** |
| --- |
| **MACPT tool words (n-41)** | **Physical** | **Emotional** | **Spiritual** | **Social** |
| **ache** | **x** |  |  |  |
| **burning** | **x** |  |  |  |
| **controlled** | **x** |  |  |  |
| **dull** | **x** |  |  |  |
| **focused** | **x** |  |  |  |
| **gnawing** | **x** |  |  |  |
| **radiating** | **x** |  |  |  |
| **throbbing** | **x** |  |  |  |
| **tired** | **x** |  |  |  |
| **uncontrolled** | **x** |  |  |  |
| **sharp** | **x** |  |  |  |
| **heavy** | **x** | **x** |  |  |
| **exhausted** | **x** | **x** |  |  |
| **normal** | **x** | **x** |  |  |
| **numbness** | **x** | **x** |  |  |
| **anxious** |  | **x** |  |  |
| **confused** |  | **x** |  |  |
| **content** |  | **x** |  |  |
| **depressed** |  | **x** |  |  |
| **distressed** |  | **x** |  |  |
| **empty** |  | **x** |  |  |
| **frightened** |  | **x** |  |  |
| **ignored** |  | **x** |  |  |
| **positive** |  | **x** |  |  |
| **scared** |  | **x** |  |  |
| **understood** |  | **x** |  |  |
| **worried** |  | **x** |  |  |
| **helpless** |  | **x** | **x** |  |
| **hopeful** |  | **x** | **x** |  |
| **peaceful** |  | **x** | **x** |  |
| **disbelieving** |  |  | **x** |  |
| **lost** |  |  | **x** |  |
| **searching** |  |  | **x** |  |
| **connected** |  |  | **x** | **X** |
| **abandoned** |  |  | **x** | **X** |
| **alone** |  |  | **x** | **x**  |
| **supported** |  |  | **x** | **X** |
| **angry** |  |  |  | **X** |
| **distant** |  |  |  | **X** |
| **isolated** |  |  |  | **X** |
| **held** | **x** | **x** | **x** | **X** |

# **Supplementa****ry material 2. Summary of questionnaires used to investigate satisfaction with consultation, perceived closeness of patient-HCP relationship and communication of pain**

Note: Questionnaires developed for the purpose of the study, and a summary of the modifications made to validated questionnaires, can be provided upon request.

| **Concept** | **Questionnaire** | **Modification and translations** | **Description and scoring** |
| --- | --- | --- | --- |
| Satisfaction with communication during consultation | Patient/physician satisfaction questionnaire (PSQ) [19]  | * Validated version of the PSQ.
* Validated version translated from English to French and German.
 | * Two versions of the questionnaire were used to investigate satisfaction with communication during consultations from the patient and HCP perspective.
* Items scored using a Visual Analogue Scale (VAS) from 0-100.
* An overall satisfaction score is obtained by averaging the responses to the questions, whereby a high score corresponds to a high level of satisfaction.
* Patient and HCP version administered after visit 1 (V1) and visit 2 (V2).
 |
| Perceived closeness of patient-HCP relationship | Perceived Interpersonal Closeness Scale (PICS) [18] | * Modified version of the validated PICS.
* Modified version translated from English to French and German.
 | * Two versions of the questionnaire were used to investigate perceived closeness of the patient-HCP relationship, from the patient and HCP perspective.
* One item scored using 7-point Verbal Response Scale (VRS) and two items scored on 4-point VRS, whereby a higher score corresponds to a greater perceived closeness of the relationship.
* Patient and HCP version administered before and after V1 and V2.
 |
| Communication of pain | Single item | * Non-validated single item developed for the purpose of the study.
* Single item translated from English to French and German.
 | * Individual items to investigate how much the pain the patient has experienced has affected them on that day, from the patient and HCP perspective.
* Scored on a 5-point VRS whereby a higher score corresponds to a greater pain interference.
* Patient version administered before V1 and V2. HCP version administered after V1 and V2.
 |
| Brief Pain Inventory (BPI) - Interference Scale [20] | * Validated version of BPI Interference Scale (patient-completed).
* Modified version of the validated BPI Interference Scale (HCP-completed).
* Validated version and modified version translated from English to French and German.
 | * Two versions of the questionnaire were used to investigate pain interference on aspects of daily activities from the patient and HCP perspective.
* Items scored on a 10-point Numerical Response Scale (NRS).
* An overall score is obtained by averaging the responses to the questions, whereby a high score corresponds to a high level of satisfaction.
* Patient version administered before V1 and V2. HCP version administered after V1 and V2.
 |
| Usefulness of MACPT conversation tool | MACPT Usefulness Questionnaire | * Non-validated questionnaire developed for the purpose of the study.
* Questionnaire translated from English to French and German.
 | * Two versions of the questionnaire were used to investigate the usefulness of the MACPT conversation tool from the patient and HCP perspective.
* Items scored on a 10-point NRS or dichotomous yes/no response options.
* An overall score is obtained by averaging the responses to items using an NRS, whereby a high score corresponds to a high level of satisfaction.
	+ Of note, items on the HCP-completed version of the questionnaire whereby a greater score indicated a negative response were transformed so they were comparable with the patient-completed version.
* Patient version administered after V2. HCP version administered after a HCP had completed all of their V2 consultations.\*
 |

\*French HCPs completed the MACPT usefulness questionnaire following each patient’s V2 consultation.

# **Supplementary material 3. Patient and HCP characteristics**

| **Characteristic** | **Patients (N=21)** | **HCPs (N=6)** |
| --- | --- | --- |
| Age |  |  |
|  Mean (SD) | 59.5 (13.6) | 41.2 (9.6) |
|  Min, Max | 38.0, 82.0 | 29.0, 52.0 |
|  Missing | 0 | 1 |
| Sex |  |  |
|  Female, n(%) | 16 (76.2%) | 6 (100.0%) |
|  Male, n(%) | 5 (23.8%) | 0 (0.0%) |
| Country |  |  |
|  France\*, n(%) | 18 (85.7%) | <5 (50.0%) |
|  UK\*, n(%) | <5 (14.3%) | <5 (50.0%) |
| Highest education level Secondary school College Vocational training Undergraduate or Graduate Post-graduate | <5 (19.0%)<5 (14.3%)6 (28.6%)6 (28.6%)<5 (9.5%) | N/AN/AN/AN/AN/A |
| Months since patient first diagnosed with primary cancer |  |  |
|  Mean (SD) | 80.2 (71.3) | N/A |
|  Min, Max | 1.0, 248.0 | N/A |
|  Missing | 9 | N/A |
| Bone metastasis (lung, prostate and breast cancer patients only), n (%) | 12 (63.2%) | N/A |
| Main comorbidities, n (%) |  |  |
|  None | 9 (42.9%) | N/A |
|  Depression | 6 (28.6%) | N/A |
|  Anxiety\* | <5 (19.0%) | N/A |
| Treatment experience[1] |  |  |
|  Surgery, n(%) | 18 (85.7%) | N/A |
|  Radiotherapy, n(%) | 17 (81.0%) | N/A |
|  Chemotherapy, n(%) | 18 (85.7%) | N/A |
|  Palliative care, n(%) | <5(4.8%) | N/A |
|  Missing, n(%) | 1 (4.8%) | N/A |
| Primary cancer location |  |  |
|  Breast cancer, n (%) | 13 (61.9%) | N/A |
|  Prostate cancer\*, n (%) | <5 (14.3%) | N/A |
|  Lung cancer\*, n (%) | <5 (14.3%) | N/A |
|  Multiple myeloma\*, n (%) | <5 (9.5%) | N/A |
| Bone pain |  |  |
|  Never, n(%) | 5 (23.8%) | N/A |
|  Yes - currently experiencing, n(%) | 10 (47.6%) | N/A |
|  Yes - within the last 12 months\*, n(%) | 6 (28.6%) | N/A |
| Skeletal-related event, within the last 12 months, n(%) |  |  |
|  No | 6 (28.6%) | N/A |
|  Yes [1] |  12 (57.1%) | N/A |
|  Bone radiation | 11 (52.4%) | N/A |
|  Bone surgery | 7 (33.3%) | N/A |
|  Pathological fracture | 8 (38.1%) | N/A |
|  Spinal cord compression\* | <5 (9.5%) | N/A |
|  Missing\* | <5 (9.5%) | N/A |
|  Analgesics at time of study enrolment[1], n (%) |  |  |
|  No analgesic use | 0 (0.0%) | N/A |
|  Analgesic use | 21 (100.0%) | N/A |
|  Non-opioid analgesics | <5 (19.0%) | N/A |
|  Weak opioids\* | <5 (9.5%) | N/A |
|  Strong opioid | 15 (71.4%) | N/A |
| Job role |  |  |
|  Physician\*, n(%) | N/A | <5 (66.7%) |
|  Nurse\*, n(%) | N/A | <5 (33.3%) |
| Years in role |  |  |
|  Mean (SD) | N/A | 5.8 (7.1) |
|  Min, Max | N/A | 1.0, 20.0 |
| Years treating people with advanced cancer |  |  |
|  Mean (SD) | N/A | 4.5 (3.1) |
|  Min, Max | N/A | 1.0, 10.0 |

\* Number not shown (<5); [1] Data may be double counted; Abbreviations: HCP, Healthcare Professional, SD, Standard deviation.

# **Supplementary material 4. Using the Managing Advanced Cancer Pain Together conversation tool**

|  |  |
| --- | --- |
| M | Motivate and encourage the patient to explain his/her choices |
| A | Acknowledge the aspects of pain that matter to the patient  |
| C | Connect with the patient to better understand his/her needs |
| P | Probe and explore specific point(s) raised by the patient |
| T | Tailor the patient’s pain management plan (including referral to other team members, if required) based on the information shared by the patient  |