**PROMs Conference 2021**

**Systematic Review of the Effect of a 1-Day Versus 7-Day Recall Duration on Symptoms Reports in PROMS**

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**Background**

There is ongoing uncertainty around the most suitable recall period for PROMs. 1,2 Existing studies indicate that symptoms are reported differently according to recall duration.3-5 A comprehensive understanding of the effect of recall duration on PROMs will facilitate comparison between instruments and may indicate the optimal recall period for specific clinical conditions.

**Aim**

This review aims to integrate literature exploring the effect of a 1-day (or 24-hour) versus seven-day (or weekly) recall period on self-reported health and quality of life.

**Methods**

A systematic search identified studies across economics, health, and psychology exploring the effect of recall duration on self-reported health and quality of life (review protocol registered with PROSPERO, see QR Code).

* **Databases:** MedLine, EmBase, PsychInfo, Web of Science, EconLit, CINAHL.
* **Eligibility:** Peer-reviewed articles exploring impact of 1-day (or 24hr) versus 7-day (or weekly) recall periods. Both quantitative and qualitative studies included. ***Exclusion Criteria:*** Not including 1-day and 7-day comparison, paediatric sample.
* **Outcomes: *Qualitative studies:*** Patient perspectives of recall period suitability obtained through interviews and focus groups will be synthesised into narrative form. ***Quantitative studies:*** Scores from PROMs with 1-day versus 7-day recall periods were compared to determine whether symptoms were reported differently.

**Results**

Screening process (see Figure 1) identified **29 qualitative studies** for narrative synthesis and **27 quantitative studies** for data extraction (see Appendix for full study listing).

Diagram

Description automatically generated

*Figure 1.* PRISMA flow diagram of screening process.

***Preliminary Quantitative Findings***

Preliminary results from 14 of the 27 quantitative studies identified (see Table 1) addressed a range of clinical domains and indicated:

* Weekly response < maximum daily response for 6 studies (2, 3, 4, 5, 6, 7),
* Weekly response > mean of daily response for 7 studies (1, 5, 6, 7, 9, 11, 14), not statistically different for 2 studies (4, 13), weekly response < mean of daily response for 3 studies (8, 12, 15)

**Table 1.** Comparison of 1-Day (or 24hr) versus 7-Day (or weekly) recalled symptom (Sx) reports.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Clinical Area** | **1st Author,**  **Year** | **N** | **1Day Recall Instrument**  (Recall instruction) | **7Day Recall Instrument**  (Recall instruction) | **Comparison** | **Recall Period with Highest Symptom Severity** |
| 1 | Cancer | Condon,  20206 | 1001 | PROMIS-Physical Function  *(“Past 24 hrs”)* | PROMIS-Physical Function  *(“Past 7 days”)* | Poorer physical function reported for 24hr recall: Estimated daily vs weekly recall mean(SE) = 40.5(0.78) vs. 40.3(0.78). | Physical function: Weekly > mean of daily. |
| 2 | Cancer,  Chemotherapy &/or Radiotherapy Adverse Events (AEs) | Mendoza, 20177 | 127 | Patient-reported outcomes version of Common Terminology Criteria for Adverse Events  (PRO-CTCAE)  (*“Past 24 hrs”)* | PRO-CTCAE  *(“Past 7 days”)* | Median of differences showed weekly response to be 0.20 points less than average of maximum 24hr response on 5-point PRO-CTCAE scale. | Cancer Tx AE Sx: Weekly < maximum daily |
| 3 | Cancer,  Chemotherapy AEs | Wood,  20158 | 32 | PRO-CTCAE  *(“Past 24 hrs”)* | PRO-CTCAE  *(“Past 7 days”)* | Median of differences showed weekly response to be 0.1 to 0.35 less than average of maximum 24hr response on 5-point PRO-CTCAE scale. | Cancer Tx AE Sx: Weekly < maximum daily |
| 4 | Cancer,  Brain Tumour | Armstrong, 20149 | 92 | MD Anderson Symptom Inventory -Brain Tumour (MSASI-BT)  *(“Past 24 hrs”)* | MSASI-BT  *(“Past 7 days”)* | 90% CI for difference between mean of 24hr vs 7 day recall was [-0.28, -0.09] not statistically significant. | Brain tumour Sx: weekly statistically equivalent to mean of daily |
| 5 | Chronic Obstructive Pulmonary Disease | Bennett,  20125 | 101 | Dypsnea Patient Diary (DPD)  *(“Past day”)* | DPD  *(“Past 7 days”)* | Weekly response < maximum daily response (difference ranged from -0.23 to -0.40 and was nonzero; P<0.001).  Weekly response > mean of daily responses (difference ranged from 0.48 to 0.59 and was nonzero; P<0.01). | Dypsnea Sx: Maximum daily > weekly > mean of daily |
| 6 | Cystic Fibrosis (CF) | Bennett,  20104 | 38 | CF Respiratory Symptom Diary  *(“Last 24hrs”)* | CF Respiratory Symptom Diary  *(“Last 7 days”)* | Weekly response < maximum daily response (difference ranged from −0.15 to −0.52 and was non-zero; P<0.01).  Weekly response > mean of daily response (difference ranged from 0.10 to 0.16 and was nonzero; P<0.05). | CF Respiratory Sx: Maximum daily > weekly > mean of daily |
| 7 | Diabetes, Type 2 (T2D) | Bennett,  201110 | 142 | T2D Symptom Diary  *(“Past 24 hrs”)* | T2D Symptom Diary  *(“Past 7 days”)* | Weekly response < maximum daily response (difference ranged from −0.32 to −0.61 and was non-zero; P<0.01).  Weekly response > mean of daily response (difference ranged from 0.16 to 0.77 and was nonzero; P<0.05). | T2D Sx: Maximum daily > weekly > mean of daily |
| 8 | Multiple Sclerosis | Topp,  201911 | 50 | Short Form-6 Dimension (SF-6)  *(“Past 24 hrs”)* | SF-6  *(“Past 7 days”)* | Weekly response < mean of daily response [week M(SD) = 0.70(0.12), day M(SD) =0.74(0.12)], difference was nonzero; P<0.001. | MS HrQoL: Weekly < mean of daily |
| 9 | Osteoarthritis | Broderick, 201312 | 98 | PROMIS-SF  *(“Last day”)* | PROMIS-Computer Adaptive Testing (CAT)  *(“Past 7 days”)* | Weekly response > mean of daily response for pain intensity [5.62(1.9) vs. 5.41(1.8)], pain interference [61(6.4) vs. 59.0(6.1)], fatigue [56.9(7.9) vs. 53.9(8.9)], physical functioning [37.5(6.7) vs. 37.0(6.5)]. | Pain intensity, interference, fatigue & physical functioning: weekly > mean of daily |
| 10 | Pain  (nononcologic) | de Andres, 201513 | 698 | Brief Pain Inventory (BPI)-Short Form  *(“Past 24 hrs”)* | BPI-Long Form  *(“Past week”)* | Intraclass Correlation (95% CIs) between weekly and daily responses were 0.946 (0.938 to 0.954) for pain severity and 0.929 (0.919 to 0.939) for pain interference. | Pain interference & intensity:  weekly statistically equivalent to mean of daily |
| 11 | Pain intensity  (whiplash-related neck pain) | Kamper,  201514 | 146 | 10-item Numerical Rating Scale (NRS)  *(“Last 24 hrs”)* | 10-item NRS  *(“Last week”)* | Weekly response > mean of daily response [week M(SD) = 57.6(19.8), day M(SD) =51.5(20.4)], difference was nonzero; P<0.01. | Pain intensity: Weekly > mean of daily |
| 12 | Psoriasis | Topp,  201911 | 50 | Short Form-6 Dimension (SF-6)  *(“Past 24 hrs”)* | SF-6  *(“Past 7 days”)* | Weekly response < mean of daily response [week M(SD) = 0.70(0.13), day M(SD) =0.73(0.14)], difference was nonzero; P<0.001. | Psoriasis HrQoL: Weekly < mean of daily |
| 13 | Psoriasis | Mathias,  201615 | 106 | Psoriasis Symptoms & Signs Diary (PSSD)  *(“Past 24 hrs”)* | PSSD  *(“Past 7 days”)* | Intraclass Correlation (95% CIs) between weekly and daily responses ranged from 0.953 to 0.957. | Psoriasis Sx:  weekly statistically equivalent to mean of daily |
| 14 | General Population | Condon,  20206 | 1399 | PROMIS-Physical Function  *(“Past 24 hrs”)* | PROMIS-Physical Function  *(“Past 7 days”)* | Weekly response < Poorer physical function reported for 24hr recall: Estimated daily vs weekly recall mean(SE) = 45(0.82) vs. 44.1(0.82). | Physical function: Weekly > mean of daily. |
| 15 | General Population | Walentynowicz,  201816 | 469 | Emotional Experience Ratings  *(“Last 24 hrs”)* | Emotional Experience Ratings  *(“Last week”)* | Weekly response < mean of daily response for sad (0.06 vs. 0.046), anxious (0.117 vs. 0.187), pain (0.054 vs. 0.110), stress (0.072 vs. 0.108).  Weekly response > mean of daily response for calm (-0.086 vs. -0.251). | Sadness, anxiety, pain, and stress:  Weekly < mean of daily |

***Preliminary Qualitative Findings***

Preliminary results for 10 of the 29 qualitative studies identified are presented in Table 2.

**Table 2.** Qualitative studies of recall duration appropriateness.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **#** | **Clinical Area** | **1st Author,**  **Year** | **N** | **Instrument** | **Metho**d | **Key Finding** |
| 1 | Eczema | Gabes,  202117 | 7 | Recap of Atopic Eczema (RECAP) | Cognitive interviewing “think aloud” technique | Weekly recall considered appropriate by 91% of sample, but “last week” changed to “last 7 days” for added clarity. |
| 2 | Chronic Hypersensitivity Pneumonitis (CHP) | Aronson,  202118 | 10 | CHP–HrQoL Questionnaire | Concept elicitation | Patients preferred 4week recall to reflect upon experiences (social events, visits with family, travel) asked about in the instrument. |
| 3 | Myelodysplastic Syndromes | Trudeau,  202019 | 16 | Functional Assessment of Cancer Therapy -Anemia  & Quality of Life in Myelodysplasia Sclae | Concept elicitation & cognitive debriefing | 7-day recall period appropriate but may not be broad enough to cover transfusion cycles |
| 4 | Hematological Malignancy | Goswami, 202020 | 60 | Hematological Malignancy Specific PROM | Content analysis of semi-structured interviews. | Most patients preferred today (65%) to last week (24%) for impact recall, but preferred week (21%) over today (6%) for signs and symptoms recall. |
| 5 | Type 1 Diabetes | Ernstsson, 202021 | 20 | EQ-5D-5L | Cognitive interviewing “think aloud” technique | Although instruction to consider “your health today” was noticed, responses were based on the typical or usual health state while temporary health problems were mostly overlooked. |
| 6 | Chronic Migraine | Speck,  201922 | 11 | Migraine-Specific Quality of Life Questionnaire | Concept elicitation & cognitive debriefing | 4-week recall period endorsed although some patients reported interference from migraine Sx with accurate memory for last 4 weeks. |
| 7 | Primary Biliary Cholangitis (PBC) | Martin,  201923 | 20 | PBC-40 | Concept elicitation & cognitive debriefing | 7-day recall period appropriate to capture daily Sx variability. |
| 8 | Idiopathic or diabetic  gastroparesis | Revicki,  201824 | 25 | American Neurogastroenterology and Motility Society Gastroparesis Cardinal Symptom Index- Daily Diary | Concept elicitation & cognitive debriefing | Most patients (63%) endorsed 24hr recall as appropriate for Sx report, while 17% suggested an alternative 7-day recall period. |
| 9 | Severe asthma | Hyland,  201825 | 16 | Severe Asthma Questionnaire (SAQ) | Four iterative focus groups | Initial 4-week recall was shortened to 2-week recall to improve accuracy of Sx recall. |
| 10 | Non-speicifc Lower Back Pain (ns-LBP) | Chiarotto,  201826 | 207 | 17 LBP instruments compared. | Delphi method (including researchers, clinicians, patients) | Numeric Rating Scale with 1-week recall endorsed by majority (96%) of sample. |

**Conclusions**

***Quantitative studies*** showed the severity of weekly Sx report to be consistently below maximum daily report across a range of clinical conditions. However, the severity of weekly Sx report varied with respect to the mean of daily Sx reports.

***Qualitative studies*** indicated that patient preference for recall period influenced by Sx variability, important clinical events, experiential survey content, and interference of Sx on memory.

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**Appendix A**

***Quantitative Studies***

|  |  |
| --- | --- |
| **Citation** | **Title** |
| Armstrong et al., (2014) | Impact of recall period on primary brain tumor patient's self-report of symptoms. |
| Bansback et al., (2008) | Impact of the recall period on measuring health utilities for acute events. [References]. |
| Bennett, Amtmann, Diehr, & Patrick (2012) | Comparison of 7-day recall and daily diary reports of COPD symptoms and impacts. |
| Bennett et al., (2010) | Comparison of 7-day and repeated 24-hour recall of symptoms of cystic fibrosis. |
| Bennett et al., (2018) | Development of a new patient-reported outcome (PRO) measure on the Impact of Nighttime Urination (INTU) in patients with nocturia-Psychometric validation. |
| Bennett et al., (2011) | Comparison of 7-day and repeated 24-h recall of type 2 diabetes. [References]. |
| Bolton,Humphreys, & Van Hedel (2010) | Validity of weekly recall ratings of average pain intensity in neck pain patients. |
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| Broderick et al., (2008) | The accuracy of pain and fatigue items across different reporting periods. |
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| Mathias et al., (2016) | Measurement properties of a patient-reported outcome measure assessing psoriasis severity: The psoriasis symptoms and signs diary. |
| Mendoza et al., (2017) | Evaluation of different recall periods for the US National Cancer Institute's PRO-CTCAE. |
| Schneider et al., (2013) | Temporal trends in symptom experience predict the accuracy of recall PROs. |
| Shi et al., (2010) | Does recall period have an effect on cancer patients' ratings of the severity of multiple symptoms?. |
| Smith & Safer (1993) | Effects of present pain level on recall of chronic pain and medication use. |
| Stone, Broderick, & Kaell (2010) | Single momentary assessments are not reliable outcomes for clinical trials. |
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| Thavarajah et al., (2013) | The Functional Assessment of Cancer Therapy - Brain (FACT-Br) for assessing quality of life in patients with brain metastases: A comparison of recall periods. |
| Topp et al., (2019) | Recall of health-related quality of life: How does memory affect the SF-6D in patients with psoriasis or multiple sclerosis? A prospective observational study in Germany. |
| Walentynowicz, Schneider, & Stone (2018) | The effects of time frames on self-report |
| Wood et al., (2015) | Comparison of seven-day and repeated 24-hour recall of symptoms in the first 100 days after hematopoietic cell transplantation. |

***Qualitative Studies***

|  |  |
| --- | --- |
| **Citation** | **Title** |
| Martin et al., (2013) | Early development and qualitative evidence of content validity for the Psoriasis Symptom Inventory (PSI), a patient-reported outcome measure of psoriasis symptom severity. |
| Naegeli et al., (2013) | The patient experience with fatigue and content validity of a measure to assess fatigue severity: Qualitative research in patients with ankylosing spondylitis (AS). |
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| Hyland et al., (2018) | How patient participation was used to develop a questionnaire that is fit for purpose for assessing quality of life in severe asthma. |
| Revicki et al., (2018) | The content validity of the ANMS GCSI-DD in patients with idiopathic or diabetic gastroparesis. |
| Hendrieckx et al., (2019) | Impact of severe hypoglycaemia on psychological outcomes in adults with Type 2 diabetes: a systematic review. |
| Martin et al., (2019) | Development and adaptation of patient-reported outcome measures for patients who experience itch associated with primary biliary cholangitis. |
| Speck et al., (2019) | Content validity of the Migraine-Specific Quality of Life Questionnaire version 2.1 electronic patient-reported outcome. |
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