1 # Gratitude at the end of life: a promising lead for palliative care

2 ## ABSTRACT

3 ***Background –*** Numerous studies, conducted largely with non-clinical populations, have shown
4 a significant link between gratitude and psychological dimensions relevant for palliative care (e.g.
5 psychological distress). However, the relevance of gratitude in the context of palliative care needs
6 to be confirmed.

7 ***Objectives –*** We strived to evaluate the association between gratitude and quality of life (QOL),
8 psychological distress, post-traumatic growth, and health status in palliative patients, and to
9 develop an explanatory model for QOL. An ancillary purpose was to identify which life domains
10 patients considered sources of gratitude.

11 ***Design –*** We performed an exploratory and cross-sectional study with palliative patients of the
12 Lausanne University Hospital.

13 ***Measurements –*** We used the *Gratitude Questionnaire,* the *McGill-Quality of Life*
14 *questionnaire,* the *Hospital Anxiety and Depression Scale,* the *Post-traumatic Growth Inventory*,
15 and the health status items of the Eastern Cooperative Oncology Group. Spearman correlations
16 and multivariate analyses were performed.

17 ***Results –*** Sixty-four patients participated (34 women, mean age= 67). The results showed
18 significant positive correlations between gratitude and quality of life (r=.376), and the appreciation
19 of life dimension of the post-traumatic growth (r=.426). Significant negative correlations were
20 found between gratitude and psychological distress (r=-.324), and health status (r=-.266). The
21 best model for QOL explained 47.6% of the variance (F=26.906) and included psychological

22 distress and gratitude. The relational dimension was the most frequently cited source of gratitude
23 (61%).

24 ***Conclusion –*** Gratitude may act positively on QOL and may protect against psychological
25 distress in the palliative situation. The next step will be the adaptation and implementation of a
26 gratitude-based intervention.

27 ***Keywords –*** gratitude, palliative care, quality of life, psychological distress, positive psychology

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30 ## BACKGROUND

31 Promoting a holistic approach to care, palliative care aims to improve quality of life by preventing
32 and relieving pain and other physical, psychological and existential problems associated with a
33 life-threatening illness (1). From a psychological perspective, research largely has focused on
34 improving the pharmacological treatments for frequently occurring psychopathologies, such as
35 anxiety or depression (2). Less is known about factors fostering psychological well-being and
36 improving quality of life. Positive psychology represents a theoretical paradigm that is
37 complementary to clinical psychopathology and concentrates on positive subjective experiences,
38 individual traits, and institutions to improve quality of life and prevent pathologies (3). Among its
39 different topics, gratitude seems particularly relevant for palliative care (4, 5).

40 In the psychology literature, gratitude is considered either as an emotional state or as a personality
41 disposition (5-7). As an emotional state, gratitude consists of two main aspects: a positive state
42 that an individual consciously experiences when he receives a benefit; and the recognition that
43 the source of this benefit was someone or something else, such as life or a more spiritual entity
44 (8). When gratitude is experienced more regularly and more intensely than average, we speak
45 about gratitude as a dispositional trait. At this level, gratitude is often perceived as "a life
46 orientation towards noticing and appreciating the positive in the world" (5, p.891). Beyond
47 psychology, it is also worth mentioning that gratitude is perceived as a central dimension in
48 traditional religious worldviews since it represents a way "to relieve guilt from moral failure" (9,
49 10), and more widely of spirituality since gratitude involves an appraisal of something as
50 meaningful (11).

51 Recently, relationships between gratitude and important outcomes of palliative care have been
52 examined in the general population. Significant links were reported between gratitude and anxiety
53 (12), depression (11, 13-15), and death anxiety (16, 17). Two longitudinal studies highlighted that
54 gratitude was a significant predictor of decreased depression and psychological distress (18).
55 Earliest clinical data have come from oncological populations, where its relevance was validated
56 (19-21).

57 Psychological traits are by definition more stable than emotions, which tend to be short-lived and
58 transient. Given the lack of data on gratitude in the palliative care context, we have specifically
59 chosen to consider gratitude as a personality trait in this study in order to obtain reliable data.

60 We hypothesized that dispositional gratitude represents a positive psychological factor in the
61 palliative care setting, contributes to the patient's quality of life, psychological wellbeing and
62 performance status. The aims of the study were (A) to explore the relation between gratitude and
63 (i) quality of life, (ii) psychological distress, (iii) post traumatic growth and (iv) health status for
64 patients in a palliative care situation; and (B) to investigate to what extent these variables
65 contribute to the patients' quality of life. An ancillary point of interest was (C) to assess which life
66 domains were identified by the patients as sources of gratitude.

67 METHODS

68 This is a cross-sectional study utilizing quantitative methods consisting of validated
69 questionnaires.

70 Procedure and participants

The study was conducted at the Lausanne University Hospital in Switzerland. Data collection took place from 2015 to 2017, with questionnaires completed during face-to-face interviews. Patients were recruited from the Palliative and Supportive Care Service and identified by the clinical team based on the eligibility criteria.

Inclusion criteria consisted of age >18, enrollment in palliative care, a stable physical state for the last 24 hours, and suffering from a progressive disease with reduced life expectancy. Exclusion criteria comprised the presence of cognitive or psychiatric disorder impairing decision-making capacity and the existence of severe communication problems (foreign language, deafness).

After identification by the palliative care team, patients were approached by an independent research collaborator who informed them about the study objectives, obtained written consent and administered the questionnaires.

Measures

Socio-demographic and medical assessments

The attending physician in charge of the patient collected socio-demographic and medical data: age, sex, nationality, mother tongue, marital status, education, profession, primary diagnosis, and co-morbidities.

Quality of life was assessed by *The McGill-Quality of Life questionnaire revised version (MQoL-R)* (22). The MQoL-R was developed for the setting of end of life. It contains 14 items (range from 0 to 10, with higher score reflecting higher quality of life) forming an overall total score and four subscales scores: physical, psychological, existential, and social. Item example: “Over the past

91 two days, I was depressed: 0-not at all to 10-extremely". The tool starts with a single item
92 assessing overall subjective quality of life. MQoL-R was translated into French (22).

93 Gratitude was measured using *The Gratitude Questionnaire 6 items (GQ-6)* (23). The GQ-6 is a
94 widely used measure of gratitude and contains six items (e.g. "I have so much in life to be thankful
95 for") rated on a Likert scale. The GQ-6 allows a measure of trait gratitude on four co-occurring
96 dimensions: density, span, frequency and intensity. This questionnaire was validated in French
97 (24). Following this questionnaire, we asked participants to name those life domains that
98 represented sources of gratitude for them.

99 Psychological distress was examined using the *Hospital Anxiety and Depression Scale (HADS)*
100 (25). The HADS consists of 14 items (e.g. "I feel as if I am slowed down") rated on a Likert scale
101 yielding a total score (0-42), a depression score (0-21) and an anxiety score (0-21), with higher
102 scores reflecting higher distress. The scale was validated in French (26).

103 Post-traumatic growth was assessed with the Post-traumatic Growth Inventory (PTGI) (27). This
104 questionnaire includes 21 items based on a Likert scale, each describing a potential change
105 arisen because of a stressful event (e.g. "I can better appreciate each day"). The questionnaire
106 includes a total score (0-105) and five subscales: better relation with others (0-35), new
107 possibilities (0-25), personal strengths (0-20), spiritual changes (0-10), and appreciation of life (0-
108 15). We used a translated French version (28).

109 To assess potential negative aspects of the disease experience and mitigate positivity bias, we
110 included two complementary items (NRS 0-10) that were administered prior to the PTGI:
111 "Globally, to what extent would you say that your disease has negatively (Q1) / positively (Q2)
112 changed you as a person and/or your life?".

113 Health status was assessed using the *Eastern Cooperative Oncology Group (ECOG)* (29). The
114 ECOG is a measurement of a patient's levels of functioning and autonomy in terms of their daily
115 activities, and living and physical abilities. It consists in five grades going from "0 - Fully active,
116 able to carry on all pre-disease performance without restriction" to "5 – Death". The ECOG
117 performance status was filled out with the physician or nurse in charge of the patient.

118 **Statistical analyses**

119 Descriptive statistical analyses were performed on the demographic variables and the
120 questionnaire data. To address our first aim, we used bivariate Spearman correlations on
121 gratitude in relation with quality of life, post-traumatic growth, psychological distress and health
122 status. Spearman correlations were chosen instead of Pearson correlations given the non-normal
123 distributions of some variables and the existence of some outlier values.

124 To address our second aim, multiple linear regression analyses (enter method) were performed
125 with Quality of life (MQoL total score) as dependent variable and health status (ECOG),
126 psychological distress (HADS total score), post-traumatic growth (PTGI total score) and gratitude
127 (GQ-6 total score) as independent variables. To obtain a more parsimonious model, we performed
128 a second linear regression, using the stepwise methods, including only the significant predictors
129 from the first model. Since, according to the literature, at least 10 to 15 observations are needed
130 for each predictor (30, 31), we only used the total score of each questionnaire in the analyses.

131 To address our final aim, the research collaborator used an open-ended approach to ask each
132 patient which life domain(s) he/she identified as a source of gratitude. We analyzed the responses
133 based on pre-existing categories adapted for this study from the Schedule for Meaning in Life
134 Evaluation (32). The proportion of agreement between two independent evaluators (BA and MB)
135 was calculated on 30% of the total domains.

136 Regarding missing data, MQoL and PTGI scores were calculated using mean imputation if no
137 more than one item score were missing for a given subscale (22). Concerning the HADS,
138 participants' subscale mean were calculated if at least half of the items were answered (33). Three
139 participants did not complete the GQ-6 questionnaire and were excluded from the analyses.

140 In accordance with the exploratory approach of our study, we set a significance level at p= 0.05
141 without Bonferroni correction.

142 Ethical commission and funding

143 This study was funded by the Leenaards Foundation and approved by the ethics committee of
144 the Lausanne University Hospital.

145 RESULTS

146 Socio-demographic and medical characteristics

147 A total of 164 patients were identified as eligible by the clinical team. Out of these, 64 patients
148 agreed to participate in the study (39% acceptance rate). Reasons for refusal were "doesn't want
149 to participate" (16%), "no longer a patient of the palliative care service" (13%), "psychological"
150 (10%) or "physical" (9%) problems, "exclusion criteria present" (7%), "deceased" (4%) or "lost to
151 follow-up" (2%). Socio-demographic data are shown in table 1.

152 *[Insert table 1 here]*

153 Descriptive analyses

154 Table 2 shows the descriptive statistics for each questionnaire used.

155 *[Insert table 2 here]*

156 ### Positive and negative impacts of the disease on personality and/or life

157 To the questions: “Globally, to what extent would you say that your disease changed negatively
158 or positively your person and/or your life?”, patients answered with a mean of 5.48 (SD= 3.4) for
159 the negative changes and a mean of 4.33 (SD=3.5) for the positive changes following the illness.

160 ### Relationship between gratitude and quality of life, psychological distress, post-
161 ### traumatic growth and health status (aim A)

162 The results of the Spearman correlation analyses are shown in Table 3. Notably, the data showed
163 a significant positive association between gratitude (GQ6 total score) and global quality of life
164 (MQoL total score), as well as with three MQoL subscales (physical, psychological, and
165 existential). The data also indicated a significant negative association between gratitude and
166 global psychological distress (HADS total score) and health status (ECOG score).

167 *[Insert table 3 here]*

168 ### Gratitude as a potential predictor of quality of life (aim B)

169 The results of the linear regression model showed that 51.9% of the variance of overall quality of
170 life (MQoL total score) was explained by gratitude, psychological distress, post-traumatic growth
171 and health status, with gratitude and psychological distress as significant predictors (adjusted R^2=
172 519; F=15.588; p=.000; see table 4).

173 *[Insert table 4 here]*

174 We performed a second linear regression (stepwise method) using only psychological distress
175 and gratitude. The results (table 5) showed that these variables explained almost 48% of the

176 variance of quality of life (adjusted R2=.476; F=26.906; p=.000; psychological distress 43.8%,
177 gratitude 3.8%).

178 *[Insert table 5 here]*

179 Sources of gratitude (aim C)

180 An average of 3.78 sources of gratitude per participant were mentioned. They were classified in
181 11 dimensions (see figure 1), with "family and friends", representing the most cited dimension
182 (57%). Concerning the classification of the cited domains, 89.5% agreement was found between
183 the two independent evaluators.

184 *[Insert figure 1 here]*

185 DISCUSSION

186 To our knowledge, this is the first study to examine the relevance of dispositional gratitude in the
187 palliative care context. In this setting, we found a weak to moderate positive correlation between
188 gratitude and overall quality of life as well as its physical, physiological and existential subscales.
189 These results are supported by previous research in other clinical settings (34-36). Notably, the
190 strongest relationship was found with the existential dimension of QOL. This lends support to the
191 hypothesis that gratitude may improve meaning in life and could reinforce spirituality (7, 37).

192 Gratitude did not correlate significantly with the relational dimension of quality of life. This point
193 was surprising given the fact that patients mentioned social relationships (and particularly family
194 and friends) as a major source of gratitude for them. This could be explained, in part, by the fact
195 that the GQ-6 does not measure gratitude according to the quality of the relationship but more in
196 terms of the quantity of people towards whom gratitude is experienced (the "density" facet of the

197 GQ-6). In addition, the GQ-6 measures gratitude with four dimensions and provides a total final
198 score, which is unidimensional; thus, the relational aspect of gratitude could not be investigated
199 independently of the total score even though it may have been important. We also found a weak
200 to moderate negative relationship of gratitude with psychological distress and with depressive
201 symptoms, consistent with previous findings in clinical settings (13, 20, 38).

202 It is also worth mentioning that one of the strongest associations found concerns gratitude and
203 life appreciation, one of the PTGI's subscales. Several authors emphasize that appreciation (of
204 life but also for simple pleasures and others) represents an essential component of gratitude (5,
205 6). This aspect may support the hypothesis that gratitude, through the appreciation experience,
206 can be a specific factor in the post-traumatic growth process that may help people to adapt to a
207 traumatic event such as a life-threatening illness (5, 39, 40).

208 A closer look at the items of PTGI may explain in part why we did not observe significant
209 correlations with the other PTGI subscales. The "new possibility" dimension includes items
210 describing having new opportunities or interests, which does not match with the definition of
211 gratitude as an appreciation of what someone already has. The items of the "personal strengths"
212 subscale describe an ability to cope with the disease, an aspect that is not included in the GQ-6
213 questionnaire. Finally, the "spiritual changes" dimension was very close to the significance level
214 (p=.055), which may be due to our relatively small sample.

215 Regarding our second aim, the most parsimonious model shows a strong impact of psychological
216 distress on quality of life, explaining almost 44% of the variance. As the only other significant
217 factor in this model, gratitude explained another 4% of QOL variance. These results confirm that
218 psychological distress represents a major issue for palliative care (41-43). They also point out
219 that positive dimensions such as gratitude play a significant role and could represent useful

220 resources for improving the quality of life of palliative care patients. This finding is consistent with
221 the patients' responses to the two additional items administered prior to the PTGI where patients
222 reported experiencing positive and negative illness consequences in almost equal proportions.

223 The correlations found in this research between gratitude and quality of life and positive
224 psychological changes on one hand and psychological distress on the other hand raise questions
225 about the processes involved. As a positive trait and emotion, gratitude can be viewed within the
226 broaden-and-build theory of emotions (44). According to this paradigm, gratitude's role is to
227 broaden people's thought-action repertoire. This process would result in an expansion of personal
228 resources that can be noticed at two levels specific for gratitude: an increase in spirituality and a
229 development of interpersonal resources, both of which contribute to global quality of life (6, 21,
230 45). Concerning the interaction between gratitude and psychological distress, Lambert, Fincham
231 and Stillman (46) showed that people higher in the gratitude trait tend to positively reframe
232 previous negative events by perceiving them as opportunities for growth, facilitating the
233 emergence of positive emotions such as gratitude and the decrease of depressive and anxious
234 symptoms (5, 46).

235 Finally, our findings indicate that family and friends are the most cited resource of gratitude for
236 palliative patients. Interpersonal and particularly familial relationships are known to be crucial for
237 palliative care patients, contributing to both their meaning in life (47-49) and their quality of life
238 (50, 51). As an "other-oriented" emotion, gratitude shows a positive impact on relationship-related
239 dimension such as feelings of social affiliation (52), relational commitment (53), satisfaction with
240 relationships (54, 55), and partner reciprocal maintenance behaviors (52, 53, 56).

241 There are several limitations to the present study. First, the cross-sectional design does not allow
242 inferring causality in the associations highlighted between the variables. Second, our relatively

243 small sample size and sometimes high level of missing data (i.e. for the PTGI) leads to a low
244 statistical power. Third, the use of the GQ-6 for assessing gratitude does not allow a complete
245 understanding of the individual characteristics of gratitude (e.g. the quality of the relationships is
246 not considered). Future research could utilize a different gratitude tool such as the S-GRAT (57)
247 to allow for an in-depth examination of dispositional gratitude. Fourth, in light of the generally high
248 scores on the gratitude scale, a social desirability bias may have influenced our results (58). We
249 strove to minimize this bias using a research investigator not connected to the clinical team.
250 Finally, as most palliative care studies, the participation rate was low, which may contribute to a
251 selection bias favoring patients with higher levels of psychological wellbeing and performance
252 status.

253 In summary, this study supports the hypothesis that gratitude may have a positive impact on
254 quality of life in palliative care patients, and may help reducing psychological distress at end of
255 life. Since the main sources of gratitude are based on social support, which in turn is known to
256 contribute strongly to quality of life and meaning in life of palliative care patients, we are currently
257 in the process of developing a gratitude-based intervention involving patients as well as family
258 caregivers.

259 AUTHOR DISCLOSURE STATEMENT

260 No competing financial interests exist.

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