

Morphine use in cancer care: A survey of attitudes and perceptions in general practice patients

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Background and objectives

Morphine is widely prescribed for patients with cancer, although a number of attitudes have been cited as barriers to its use, including fear, addiction and associations with death. The aim of this study was to explore the nature of these beliefs, and assess the extent to which these attitudes exist in a general practice patient population that may require morphine in the future.

Methods

A 30-item survey was distributed through general practices in Victoria, Australia.

Results

Of the 379 questionnaires distributed, 290 were collected (76.5%). Participants were predominantly neutral on questions regarding the effect of morphine on the duration of life. Morphine was seen to be prescribed responsibly (73.5%), even while most perceived its potential for addiction (69.7%). Participants with experience of morphine use had more negative perceptions regarding its efficacy.

Discussion

Conversations regarding morphine use should include a discussion about the beliefs and experiences of the individual, many of which may reinforce the utility of morphine.

Morphine is viewed as an integral part of cancer care, reflecting a recent history where it has been viewed as the 'gold standard treatment' for cancer pain.¹⁻³ This close association with cancer and end-of-life care has created a broad array of perceptions around the role of morphine and its effects.⁴⁻⁶ The perceptions of morphine and opioids presented in the literature have typically highlighted negative attitudes and barriers to morphine use, including fear, addiction, tolerance or associations with death.⁷⁻¹¹ The studies have focused on the perceptions of health practitioners and cancer patients, but relatively little is known about the views of the wider community on morphine use in cancer care.¹²

Understanding perceptions of morphine and the influences of these views is important to clinical care, as it is well established that personal experience and attitudes are important factors in acceptance and adherence to analgesia, pain reporting and psychological distress.¹²⁻¹⁵ A patient's first episode of analgesia use has been identified as an area of particular importance, as it influences perceptions and patterns of ongoing analgesia use.⁵ To properly engage in this conversation at the time of morphine prescription, the context and diversity of views within which patients and families are embedded must be understood.

An explorative qualitative study was initially undertaken to explore attitudes and perceptions of morphine use in cancer care among a general practice population.¹² Participants of that study were highly supportive of morphine use, with this attitude founded on the perceived severity of cancer pain and potency of the response. They believed morphine could be used in cancer care to 'provide peace' and treat pain, but had mixed views regarding its effects on survival. These perceptions differed from those presented in other literature, demonstrating a pragmatic understanding of its benefits and risks.^{7,8,16}

The aims of this study were to explore, in a general practice population, the perceptions of morphine use in cancer care, and to identify the extent to which these attitudes exist in

a population who, in five or 10 years, may themselves require, or have family members who require, the use of morphine for cancer.

Methods

In the absence of an existing instrument, a survey of attitudes and perceptions of morphine was developed. Human research ethics approval for all phases of this study was granted through St Vincent's Hospital Ethics Committee (reference LLR 030/13).

The initial item generation phase was informed from the qualitative study and supplemented by literature review.¹² An initial pool of 109 questions was systemically developed from the qualitative data by the research team, and refined to 29 questions. Pilot testing of the instrument involved a group of eight health professionals and researchers to assess content and clarity. A 30-item measure was formed in response to feedback from the pilot testing. The instrument was subsequently piloted with a group of nine target participants and tested for face validity, with minor changes to wording as a result.

Recruitment was undertaken at eight general practices across urban and rural areas of Victoria, Australia. Eligible individuals were aged 18 years or older, able to sufficiently comprehend English, and presented at a GP clinic. The questionnaire was distributed in the waiting room of each of the practices for a two-week period between November 2013 and February 2014. Participation was voluntary, all data were non-identifiable, and project information and consent statement were included with the questionnaire.

Demographics and experiences of morphine use were collected. A five-point Likert scale, where 1 indicated 'Strongly disagree', 3 was 'Neither agree nor disagree', and 5 indicated 'Strongly agree', was applied to the items generated for the questionnaire.

Data analyses

Data were analysed using R 3.0.2 (R Foundation for Statistical Computing,

Vienna, Austria). Exploratory factor analysis (EFA), with an ordinary least squared (OLS) extraction method, was used to examine the latent structure of the data. Direct oblimin rotation was used so that multiple factors, if found, would be allowed to correlate.¹⁷ Because the data did not approximate a multivariate normal distribution, a minimum covariance determinant (MCD)¹⁸ correlation matrix was used for the EFA and associated preliminary analyses. This approach to EFA is robust to data outliers and data heterogeneity.^{19,20}

For the EFA, an absolute factor loading of ≥ 0.32 was considered statistically significant.¹⁷ An iterative approach was used to remove items with low factor loadings (ie an absolute loading of < 0.32) or items that cross-loaded on one or more factors. Parallel analysis,²¹ a Monte Carlo test for retention of factors based on the magnitude of eigenvalues, was used to determine the number of factors to extract. Because of the tendency of parallel analysis to overestimate the number of factor to retain, the 95th percentiles of the random eigenvalues were used.²²

Internal consistency – a measure of reliability – was calculated for each factor once the EFA was finalised. This refers to the extent to which all of the items in a scale (or factor) measure the different aspects of the same attribute.¹⁷ Cronbach's α was used as a measure of internal consistency, with values of ≥ 0.70 indicative of good internal consistency. Because Cronbach's α can be reduced for scales with fewer items, item-total correlations were calculated to quantify the correlation between an item and the total scale score. Values ≥ 0.40 are considered acceptable.²³

Results

Of the 379 questionnaires administered, 290 were returned giving a response rate of 76.5%. Participant demographic results are presented in Table 1. The majority of participants (68.7%) reported knowing someone with cancer who had used morphine, and 125 (44.8%)

Table 1. Participant demographics

	n (%) or mean (SD)
Gender	
Male	71 (25.5%)
Female	208 (75.6%)
Age	52.56 (16.89)
Highest education level	
No formal schooling	3 (1.1%)
Primary school	4 (1.5%)
Secondary school	84 (30.3%)
TAFE or trade school	47 (17.0%)
University degree	139 (50.2%)
Country of birth	
Australia	230 (82.4%)
Europe	28 (10.0%)
Asia	7 (2.5%)
Other continent	14 (5.0%)
Language spoken at home	
English	271 (97.1%)
Other	8 (2.9%)
Knows someone with cancer who has used morphine	
Yes	191 (68.7%)
No	59 (21.2%)
Unsure	28 (10.1%)
Previously used morphine	
Yes	125 (44.8%)
No	128 (45.9%)
Unsure	26 (9.3%)

had themselves previously been treated with morphine. Participant responses to selected items of clinical relevance are detailed below in ternary form (Table 2). Items with strong agreement include:

- Morphine makes the end of life more peaceful (82.1%).
- Morphine is used responsibly by health professionals (73.5%).
- Morphine is very addictive (69.7%).
- Over time, more morphine will need to be used (69.6%).

Table 2. Responses to particular questions, grouped into themes from which they were constructed (n = number of respondents)

	Strongly agree/ agree n (%)	Neutral n (%)	Strongly disagree/ disagree n (%)
Efficacy			
Morphine is the strongest pain relief	108 (39.4%)	87 (31.8%)	79 (28.8%)
Morphine is always strong enough to relieve cancer pain	45 (16.3%)	76 (27.2%)	155 (56.2%)
Morphine might not work as the pain gets worse	158 (56.6%)	75 (26.9%)	46 (16.5%)
Over time, more morphine will need to be used	195 (69.6%)	69 (24.6%)	16 (5.7%)
Addiction			
Morphine is very addictive	193 (69.7%)	67 (24.2%)	17 (6.1%)
There is no risk of addiction for morphine in cancer care	53 (19.1%)	80 (28.9%)	144 (52%)
Cancer pain			
All people with cancer will require morphine at some stage	73 (26.2%)	67 (24.0%)	139 (49.8%)
Pain means the cancer is getting worse	77 (27.8%)	89 (32.1%)	111 (40.1%)
Cancer patients will experience pain at some point	187 (67.8%)	62 (22.5%)	27 (9.8%)
Nothing is more painful than cancer	58 (20.7%)	110 (39.3%)	112 (40%)
Life expectancy			
Morphine can shorten life	75 (27.2%)	125 (45.3%)	76 (27.5%)
Morphine has no effect on life expectancy	71 (25.9%)	133 (48.5%)	70 (25.5%)
Doctors use morphine with the knowledge that it will shorten life	40 (14.4%)	107 (38.6%)	130 (46.9%)
Using morphine allows people to live longer	40 (14.5%)	133 (48.2%)	103 (37.3%)
Morphine as a treatment of last resort			
Using morphine means death is coming	34 (12.3%)	64 (23.2%)	178 (64.5%)
Morphine is needed only when people are dying	19 (6.8%)	32 (11.4%)	230 (81.9%)
Peace			
Morphine makes the end of life more peaceful	229 (82.1%)	37 (13.3%)	13 (4.7%)
Responsible use			
Morphine is used responsibly by health professionals	202 (73.5%)	57 (20.7%)	16 (5.8%)

A bold factor indicates concordance of >50%.

'Neither agree nor disagree' was a common response for several questions. Those questions that focused on the theme of 'life expectancy' all resulted in a large proportion of neutral responses:

- Morphine can shorten life (45.3%).
- Doctors use morphine with the knowledge that it will shorten life (38.6%).
- Morphine has no effect on life expectancy (48.5%).

Questions exploring the association of

morphine with imminent death scored with a high proportion of participants disagreeing:

- Using morphine means death is coming (64.5%).
- Morphine is only used when people are dying (81.9%).

Exploratory factor analysis

Cases with missing values in the questionnaires were omitted, resulting in a sample size of 241 for the EFA. Four

items were omitted on the basis of low correlations with other items (ie absolute $r < 0.32$).¹⁷ The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.69 (above the recommended 0.60),^{24,25} which suggests enough common variability among items to indicate factorability. Bartlett's test of sphericity²⁶ was statistically significant ($\chi^2[276] = 1526.54$, $P < 0.001$). Together, these indices suggest that the MCD correlation matrix was appropriate for factor analysis.²⁷

The final EFA suggested that the best fit to the data was a four-factor solution comprising 13 items with four scales named 'Cancer pain', 'Life expectancy', 'Efficacy' and 'Addiction'. Factors and factor loadings for this EFA and the descriptive statistics for each item are detailed in Table 3. Internal consistency was $\alpha = 0.72$ for the 'Cancer pain' scale, $\alpha = 0.62$ for the 'Life expectancy' scale, and $\alpha = 0.53$ for the 'Efficacy' scale, with item-total correlations >0.71 .²³ The 'Addiction' scale had good face validity, with all items pertaining to the addiction potential of morphine, internal consistency of $\alpha = 0.53$ and all item-total correlations of 0.82.

Group differences

Group differences were analysed dependent on demographic variables, using a two-sample t-test to compare the responses of participants. There were no significant differences in responses according to age, sex or education level.

Experiences of morphine use showed some between group differences (Table 4). Participants who had previously known someone with cancer, or had personally been given morphine, had significantly higher scores on the efficacy scale, thus perceiving it to be less efficacious. There were no significant differences on the other ('Cancer pain', 'Life expectancy' and 'Addiction') scales.

Discussion

This study has documented important findings on perceptions of morphine and its use for patients with cancer as held by a general practice population. Importantly, the widely reported barriers and concerns so prevalent in patient and health practitioner populations were not so expressed in this study. In contrast to previous studies, this population view morphine as providing good pain relief, which has significant utility in treating cancer pain despite being potentially addictive.⁷⁹

The perception that morphine may 'hasten death' has been described in the literature, and is reported to be a

perception also held by some health professionals.²⁸⁻³⁰ This issue has been specifically refuted in the literature, with no evidence that morphine, used appropriately, has any effect on length of life.³¹

The lack of a perceived association between morphine and shortening life in this study deserves specific comment, particularly as it contrasts with discussions by other authors.^{6,28} On this subject, there was a large degree of neutrality – one-quarter of respondents believe morphine shortens life and 15% perceive it prolongs life. It is reassuring that such a view is not widely supported in this population; however, it raises questions as to why healthcare professionals continue to believe such views exist. This understanding may represent a more complex phenomenon and, indeed, may reflect deeply held views of healthcare professionals.^{28,31,32} Although doctors and nurses may broadly believe that appropriate morphine use does not alter life expectancy, some doubt may nonetheless exist and this may in turn influence decision-making and communication. In place of communication based on patient understanding, health professionals may arrive at this conversation with pre-supposed beliefs that are then superimposed on patients and their family.

It is important to note the findings from the EFA that show a reduced perception of the efficacy of morphine among those with prior experiences of its use. This could be related to a number of factors, which, importantly, include the perception of morphine as the 'most powerful' analgesic contrasting with the reality of effect.¹²

This survey reveals largely positive perceptions about morphine and its role in cancer care. Indeed, these perceptions are more positive than anticipated, given the extensive detailing of concerns and barriers in the pain literature.^{6,28,33} It is likely that these differences stem from the population sampled being less concerned about direct implications for themselves than a cancer-patient population, and the context within which the survey was

conducted, which was deliberately not focused only on reporting of barriers, but invited positive associations and factual understandings.

Perhaps rather than assuming that barriers and concerns exist when initiating morphine prescription, an open exploratory approach should be taken. Such an approach would be characterised by questions such as 'What do you understand about morphine?' or 'Do you have any queries about morphine?'. The aim of the approach should be to initiate a discourse that is relevant to the patient or their family, discussing their experiences or beliefs. While this is a seemingly basic component of clinical care, in the busy clinic it is easy to digress to assumptions, which may or may not be relevant to that individual.

This study has a number of limitations that are primarily related to the participants. They were predominantly female, Australian-born, tertiary-educated and represented a large proportion of people who were previously given morphine, or had a shared experience of morphine in cancer care, rates of which have not previously been documented and may have occurred in a range of settings. Steps were taken to minimise population bias by involving general practices in a range of socioeconomic, geographical and cultural areas of Victoria. The findings of this research are singularly relevant to morphine and do not attempt to explore attitudes to the growing number of opioid medications available. Future work may concentrate on mapping perceptions from the general population to the cancer population to determine if such attitudes change as circumstances change, or with the provision of patient information about use of morphine.

Conclusion

This study may provide guidance for the clinical consultation, to identify those views that are widely held and form the basis for discourse. Past experiences of morphine use (either personal or through family and friends) should be discussed

Table 3. Descriptive statistics and factor loadings for each item

	Descriptive statistics				Factor loadings			
	Strongly disagree (%)	Median	Mean	Standard deviation	CP	LE	E	A
All people with cancer will require morphine at some stage	9.1	2	2.71	1.10	0.68	-0.09	0.08	0.05
Cancer patients will experience pain at some point	0.4	4	3.80	0.91	0.61	0.07	-0.11	0.06
There is nothing more painful than cancer	12.4	3	2.78	1.11	0.60	-0.10	0.03	-0.08
Pain means the cancer is getting worse	8.7	3	2.85	1.06	0.59	0.17	0.11	-0.01
Doctors use morphine with the knowledge that it will shorten life	14.1	3	2.55	0.96	0.05	0.75	0.05	0.11
Morphine can shorten life	6.2	3	3.00	0.92	-0.40	0.60	0.00	-0.15
Morphine has no effect on life expectancy	6.6	3	2.98	0.91	0.16	-0.50	0.10	0.11
Morphine is always strong enough to relieve cancer pain	14.5	2	2.45	0.96	0.15	0.02	0.69	0.01
Morphine might not work as the pain gets worse	4.1	4	3.52	1.03	0.25	0.01	-0.58	-0.06
Morphine is the strongest pain relief	7.9	3	3.12	1.10	0.18	0.09	0.43	-0.13
There is no risk of addiction for morphine in cancer care	14.1	2	2.56	1.04	0.09	0.07	0.00	0.72
Morphine is very addictive	0.8	4	4.03	0.93	0.17	0.14	-0.03	-0.55

n = 241

A, addiction; CP, cancer pain; E, efficacy; LE, life expectancy

A bold factor loading indicates significant loading on the relevant factor.

and related to the clinical indications for present use. It is significant to demonstrate the wide diversity of views surrounding morphine, especially those positive associations that support its ongoing place in cancer care.

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Table 4. Descriptive and test statistics for group comparisons on subscale scores

	Known someone with cancer								Test		
	Yes				No				t	df	P
	n	M	SE	SD	n	M	SE	SD			
CP	182	3.07	0.06	0.76	51	3.04	0.10	0.73	0.18	231	.856
LE	180	2.89	0.06	0.75	54	2.73	0.09	0.67	1.47	232	.144
Efficacy	183	2.63	0.06	0.75	53	2.89	0.10	0.71	2.19	234	.029
Addiction	183	2.30	0.06	0.83	54	2.31	0.10	0.75	0.04	235	.968

	Previously given morphine								Test		
	Yes				No				t	df	P
	n	M	SE	SD	n	M	SE	SD			
CP	118	2.96	0.07	0.74	118	3.12	0.07	0.74	1.68	234	.094
LE	120	2.79	0.06	0.69	119	2.89	0.07	0.76	1.06	237	.292
Efficacy	118	2.56	0.07	0.71	121	2.82	0.06	0.69	2.89	237	.004
Addiction	120	2.23	0.08	0.85	121	2.33	0.07	0.78	0.96	239	.337

CP, cancer pain; LE, life expectancy; M, mean; SD, standard deviation; SE, standard error

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