Patient satisfaction with nurse-led chronic kidney disease clinics: A multicentre evaluation

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ABSTRACT

Background

There is growing international evidence that nurse-led chronic kidney disease (CKD) clinics provide a comprehensive approach to achieving clinical targets effective in slowing the progression of CKD. Across Queensland, Australia these clinics have been established in many renal outpatient departments although patient satisfaction with these clinics is unknown.

Objectives

To measure patient satisfaction levels with CKD nurse-led clinics.

Method

This was a cross-sectional study undertaken at five clinics located in metropolitan, regional and remote hospitals in Queensland. Participants were >18 years of age (no upper age limit) with CKD (non-dialysis) who attended CKD nurse-led clinics over a six month period (N=873). They completed the Nurse Practitioner Patient Satisfaction questionnaire which was modified to suit CKD patients.

Results

The response rate was 64.3% (n=561); half of the respondents were male (55.5%), there was a median age range of 71–80 years (43.5%) and most respondents were pensioners or retired (84.2%). While the majority reported that they were highly satisfied with the quality of care provided by the nurse (83.8%), we detected differences in some aspects of satisfaction between genders, age groups and familiarity with the nurse. Overall, patients' comments were highly positive with a few improvements to the service being suggested; these related to car-parking, providing more practical support, and having accessible locations.

Conclusion

61   In an era of person-centred care, it is important to measure patient satisfaction using

62   appropriate and standardised questionnaires. Our results highlight that, to improve services,

63   communication strategies should be optimised in nurse-led clinics.

64

65   **Keywords:** Chronic kidney disease, nurse-led clinics, patient satisfaction

66

INTRODUCTION

Nurse-led clinics provide a health care service that is managed and organised by specialised nurses who monitor and support patients with certain diseases. Since the 1990s, nurse-led clinics have emerged as a model for ambulatory delivery of health care, usually in community settings (Pagels *et al.*, 2008). Generally, the services provided by these nurses include health assessments to monitor chronic conditions, screening for complications and the provision of health education. Nurses employed in these clinics usually possess advanced competence and skills and practice as autonomous practitioners (Wong & Chung, 2006). The efficacy of nurse-led clinics has been evaluated for a variety of medical conditions including diabetes, hypertension and cardiovascular disease (Gabbay *et al.*, 2006), showing favourable associations with lifestyle changes and hospital admissions, as well as improvements in quality of life, disease related knowledge, adherence to treatment regimens, and self-management behaviours (Grady *et al.*, 2000; Loftus & Weston, 2001; Griffiths, 2004). Nurse-led clinics have also been associated with high levels of patient satisfaction (Sandinha *et al.*, 2012; Townsend, 2014; Berglund *et al.*, 2015).

Previously, nephrology nurses were largely employed to provide health care to patients with end stage kidney disease in hospital wards and dialysis units (Pagels *et al.*, 2008; Neyhart *et al.*, 2010; Fadem *et al.*, 2011). With recent efforts to identify CKD at earlier stages, many aspects of CKD management lend themselves to involvement of a team approach, with the nurse potentially having a pivotal role (Peeters *et al.*, 2014b; Wierdsma *et al.*, 2016). The effectiveness of nurse-led services in CKD has been previously studied. In a randomised control trial conducted in Canada (Canadian Prevention of Renal and Cardiovascular Endpoints Trial [CanPREVENT]), patients treated by the nurse practitioner-led multidisciplinary team showed improved overall patient survival (Goldstein *et al.*, 2004) and

4

92   had fewer days in hospital (Hopkins *et al.*, 2011) although there was no difference in the rate

93   of GFR decline (Barrett *et al.*, 2011). Another randomised control trial conducted in the

94   Netherlands (MASTERPLAN) showed that additional support provided by nurse

95   practitioners slowed the decline of kidney function and led to fewer deaths (Peeters *et al.*,

96   2014a).

97

98   To address the increasing numbers of patients, Queensland Health (state department of health

99   in Australia) established nurse-led CKD clinics which are based on the model of care where

100   the nurse functions as a case manager, coordinating care pathways, collaborating with other

101   multidisciplinary team-members and working from a holistic framework. All of the nurse-led

102   services have medical practitioner (nephrologist) support although it varies between sites

103   (onsite, weekly, monthly or less frequently), and the multidisciplinary team is also not

104   consistent (not all renal services have a pharmacist, dietitian or social worker). The constant

105   members of all CKD teams are nurses. The first nurse-led CKD clinic was established at the

106   Princess Alexandra Hospital (Brisbane) in 2006. Currently there are more than 15 nurse-led

107   CKD services across metropolitan and regional Queensland (QLD; a large state 3.5 times the

108   size of Spain). Each of the services operates in a similar way with patients initially assessed

109   by medical staff as being suitable for referral to the nurse-led clinic, which is normally

110   located in the outpatient area of a hospital or a community health facility. During an

111   appointment the nurse focuses on review of laboratory results, CKD complications, lifestyle

112   counselling, support to adhere with treatment regimens, education about CKD and, if

113   required, renal replacement therapy. Adjustments to medications and ordering diagnostic

114   investigations can be done by nurse practitioners during the clinic appointment (as this level

115   of nurse in Australia is legally able to undertake these activities; see Gardner *et al.* (2007).

116   Other levels of nurses either follow a protocol or contact the medical practitioner. Each

117 appointment is approximately 30–45 minutes in duration (individualised according to

118 patient's needs). Ideally a patient is seen by the same nurse at each appointment, supporting

119 the development of good patient/nurse rapport built over a number of years. The frequency of

120 appointments is dependent on the stability, clinical and psychosocial needs of the patient.

121 Following their clinic appointment all patients are contacted by the nurse to discuss the

122 outcomes of any investigations undertaken and any alterations which may be necessary in

123 their treatment regimen. Whilst data is routinely collected on clinical outcomes in these

124 clinics, those with CKD are seldom consulted regarding the support they would like to

125 receive (Havas *et al.*, 2016) or the quality of service provided to them.

126

127 Determining patients' level of satisfaction with health care provides useful information on the

128 quality of services and how to improve them (Rundle *et al.*, 2004; Mpinga & Chastonay,

129 2011). According to Rundle *et al.* (2004) satisfied patients are more inclined to adhere to

130 their management plan. Recently the Australian Safety and Quality Framework (2015) has

131 required health care organisations to engage with patients by using their experiences and

132 expertise to ensure that health care is safe and of a high quality. However, the instruments

133 used to measure satisfaction are mostly focused on traditional hospital in-patient treatment

134 which has limited fit with specialised chronic disease outpatient services.

135

136 There have been few studies examining patients' satisfaction with renal health care. van der

137 Veer *et al.* (2012) developed a tool to measure patient satisfaction with chronic dialysis

138 treatment. Recently, Best and Bonner (2015) adapted an existing hospital-based patient

139 satisfaction tool; however, this tool was designed for a specific highly structured medical-led

140 clinic reviewing a narrow group of patients who were approaching dialysis. However, neither

141 of these tools fitted the aim of this study, which was to measure the level of patient

142 satisfaction with the nursing care at CKD nurse-led clinics.

143

144 **METHODS**

145 *Study Design*

146 A cross-sectional study design was used to recruit participants from five CKD nurse-led

147 clinics. The clinics were located in metropolitan, regional and remote locations across

148 Queensland, Australia. Eligible participants were adults (>18 years of age; no upper age

149 limit) with CKD (all non-dialysis) who attended the clinics during a six month period. Those

150 with serious cognitive impairment were excluded. Participants were recruited for the study

151 via communication with an administrative officer or nursing assistant at the clinic reception;

152 nurses from the clinics were not involved in the recruitment process. Return of the

153 questionnaire provided implied consent, as explained in the information sheet. This study

154 received ethics approval for all sites (HREC/13/QPCH/120).

155

156 Data was collected using a two-part questionnaire incorporating demographic assessment and

157 the modified Nurse Practitioner Patient Satisfaction Questionnaire (Gardner *et al.*, 2010a),

158 chosen for its appropriateness for the model of care used in the present study. The original

159 version of the questionnaire was developed and validated in a range of in-patient and out-

160 patient nurse practitioner-led services (including CKD clinics) during the Australian Nurse

161 Practitioner Project in 2009 (Gardner *et al.*, 2010b). It is designed for use with patients with

162 diverse health problems, cared for by a range of nurse practitioners practicing in both

163 metropolitan and rural areas to measure patient satisfaction with nurse practitioner-led

164 services (Gardner *et al.*, 2010b). We modified the original questionnaire (with permission)

165 because not all CKD clinic sites have a nurse practitioner, therefore the phrase 'kidney nurse'

166 replaced 'nurse practitioner'. The questionnaire comprised 32 core questions in five survey

167 domains: basic patient demographics (age, gender, level of education, distance travelled, and

168 number of visits to the service), access to services, experience with coordination of care,

169 satisfaction and safety and quality of services provided (see Supplementary file 1). Each

170 domain contained a mix of patient experience and patient satisfaction questions. For the

171 patient experience questions, patients were asked to give factual responses to questions about

172 what did or did not occur by selecting "yes" or "no". For the patient satisfaction questions

173 patient were asked to rate their response on a 5-point Likert scale. Questions regarding

174 prescription of medications, referral for diagnostic tests and provision of treatments were

175 excluded because these refer only to the scope of practice of a nurse practitioner. Questions

176 were rephrased to explore the patient's knowledge of medications. Four additional questions

177 were designed to measure other aspects of treatment satisfaction, including patients'

178 knowledge and understanding of renal replacement treatment options. In this study, we

179 calculated the Cronbach alpha coefficient score, using the specific satisfaction questions, to

180 be 0.91.

181

182 Potential participants were provided with an information sheet, questionnaire and reply paid

183 envelope on arrival to the clinic by an administrative officer. The questionnaire was

184 completed prior to being seen by the nurse. Completed questionnaires were returned

185 anonymously either into a box provided at the clinic reception or by post to the hospital. Data

186 collection was staggered across sites between November, 2013 and December, 2014.

187

188 *Statistical Analysis*

189 Data (unweighted raw scores) were entered into a spreadsheet at each of the sites and then

190 combined and imported into SPSS (IBM SPSS Statistics for Windows, Version 23.0.

191 Armonk, NY: IBM Corp.). Descriptive statistics (mean, frequency) were calculated. Separate

192 between-group analyses were performed for gender, number of visits (1–4, 5–9 and ≥10), age

193 (16–25, 26–40, 41–50, 51–60, 61–70, 71–80, 81–90 and >90 years of age) and education

194 level. For gender, number of visits and education comparisons, ordinal data were analysed by

195 the Kruskal-Wallis test and nominal data were analysed by the Chi Square test, with post hoc

196 pairwise comparisons between all conditions. Comparisons between age groups were

197 performed by bivariate correlation analysis using Spearman's correlation coefficient (chosen

198 due to the non-parametric data distribution). P values <0.05 were considered statistically

199 significant.

200

201 **RESULTS**

202 *Demographic Characteristics*

203 Over a six month period, 873 surveys were distributed with 561 patients (64.3%) returning

204 completed surveys. Table 1 shows demographic characteristics of the cohort. 55.5% of

205 respondents were male and 65% were aged over 70 years. Almost half (48.6%) had no

206 intermediate or school certificate and 24.3% had only completed primary school-level

207 education. Most respondents were non-indigenous, with only 6% identifying as Aboriginal or

208 Torres Strait Islander. 84.2% were retired or pensioners. As we were interested in studying

209 patient satisfaction regardless of CKD stage, no further patient characteristics were collected.

210

211 *Access to Services*

212 Data collection sites were spread across metropolitan and regional areas in QLD.

213 Surprisingly, 93.7% of patients travelled less than 50 km to a kidney clinic with only 6.3%

214 travelling further than 50 km. The majority indicated they had access to timely kidney

215   nursing care, with 80.0% indicating that they had to wait 30 minutes or less for their

216   appointment.

217

218   Overall, this cohort was well known to the nurses, with 87.0% attending the nurse-led clinic

219   for >12 months. 74.2% of patients had come to the clinic for a clinic review and 58.0% for an

220   education session (patients were directed to select more than one option if applicable).

221

222   *Coordination of Care*

223   In terms of patient experience with coordination of care, 71.9% of patients strongly indicated

224   that the nurses were informed and up to date about the previous care the patients had received

225   for health related conditions and 83.8% stated that the nurse always provided clear

226   instructions to manage their health. The majority of patients (71.5%) indicated that the nurse

227   recommended a treatment for a particular health problem or symptom.

228

229   *Satisfaction and Safety*

230   In relation to patient satisfaction with kidney nursing care, 78.6% of patients reported that the

231   nurse always explained things in a way that was easy to understand and 87.0% indicated that

232   the nurse always listened carefully to them, with enough time to discuss all health concerns.

233   72.6% of patients indicated that they were encouraged to share in the decision making about

234   their health and 78.3% were very comfortable talking to the nurse about any topics related to

235   their health. 90.7% indicated that they discussed their medications with the nurse and, of

236   these, 92.8% were satisfied with the discussion.

237

238   *Quality of Services Provided*

239 Although 74.4% of patients indicated that the nurse assisted with making changes to their

240 habits or lifestyle to improve their health or prevent illness, when the question was rephrased

241 to focus on individual risk factors there was evidence of limitations in the provision of

242 lifestyle intervention. 19.2% and 22.1% of patients indicated that the nurse talked to them

243 about smoking and alcohol, respectively. Approximately half of the cohort reported that the

244 nurse talked to them about weight loss (51.7%) and physical activity (56.2%). 67.4%

245 indicated that they had conversed with the nurse about nutrition, but only a quarter (24.9%)

246 reported that their emotions were discussed.

247

248 The last four questions collected information on the renal replacement therapy options. Out of

249 the 561 returned surveys, 179 patients for whom this was applicable responded to this

250 section. 68.7% reported having been given more than one treatment option. Of these, 84.2%

251 indicated that they had been given enough information about each option and 78.4%

252 indicated that the nurse had asked them which treatment they preferred. Among those who

253 only had one treatment option to consider, the majority (78.3%) reported that they had

254 received enough information about this option.

255

256 Overall, patients were highly satisfied with the quality of care provided (83.8%) and 89.4%

257 indicated that the nurse definitely had a positive contribution to their wellbeing. Table 2

258 provides frequency results for all questions.

259

260 282 patients also provided comments about their experiences with attending the nurse-led

261 CKD clinics. Overwhelmingly, the patients provided positive comments and the few negative

262 comments were related to the waiting room facilities. Two patients commented: *"I know if I*

263 *need help you are available to me!!"* and *"continue to provide the excellent service given*

264　*during every visit"*. The three main areas for improvement were: 1) car-parking, 2) practical

265　support (e.g. cooking meals, etc.) and 3) having accessible locations (away from large

266　hospitals; easier access for transport and parking).

267

268　*Between-group Comparisons*

269　Between-group comparisons were conducted for all survey items. In general, male and

270　female patients responded to the questions in a similar way, with the only differences

271　between gender detected in questions about lifestyle factors smoking, alcohol and emotions.

272　Males were more likely to report talking with the nurse about smoking (23.7% vs. 14.5%;

273　p=0.01) and alcohol (26.9% vs. 15.8%; p=0.003), and females were more likely to report

274　talking about emotions (21.8% vs. 30.3%; p=0.04).

275

276　When comparisons were performed between the age groups (16–25, 26–40, 41–50, 51–60,

277　61–70, 71–80, 81–90 and >90 years), differences emerged in responses to questions about

278　lifestyle factors. There was a negative correlation between age group and how likely patients

279　were to discuss smoking (r=-0.1, p=0.001), physical activity (r=-0.2, p<0.001), nutrition (r=-

280　0.1, p=0.007), alcohol (r=-0.1, p=0.008), weight loss (r=-0.1, p=0.002) and emotions (-0.1.

281　p=0.002) with the nurse, as well as whether they were given help to change their lifestyle (r=-

282　0.1, p=0.03).

283

284　To investigate the effect of familiarity with the nurse on patient satisfaction, we assessed

285　group differences after separating the cohort into three groups: those who had seen the nurse

286　1–4 times, 5–9 times and 10 or more times. While most questions were answered similarly

287　between groups, patients who had been seen 5–9 times in the clinic reported being the most

288　comfortable talking to the nurse about any topics related to their health (p=0.007) and rated

289   the nurse's knowledge of their medical history the most highly (p=0.01). Patients who had

290   been seen 1–4 times were the least likely to report talking about physical activity (p=0.03),

291   emotions (p=0.01) and medications (p=0.02) with the nurse. There were no effects of

292   education level on patient satisfaction.

293

294   **DISCUSSION**

295   This study revealed that CKD patients were highly satisfied with their experience of nurse-

296   led clinics in Queensland, expressing favourable responses to questions about access to

297   services, coordination of care, and satisfaction and safety in a similar way to previous studies

298   into patient satisfaction with nurse-led clinics in other specialities (Sandinha *et al.*, 2012;

299   Townsend, 2014; Berglund *et al.*, 2015). Ample consultation time, in-depth specialised

300   knowledge, listening to and understanding individual patient needs and a holistic approach

301   were identified as factors contributing to patients' satisfaction. Patients deemed suitable for

302   the CKD clinics are usually seen by the same nurse at each visit over a number of years.

303   Access to a key healthcare professional for support and continuity of care is a key factor

304   associated with patient satisfaction and self-care (Bergeson & Dean, 2006).

305

306   However, we identified gaps in the quality of services provided at these clinics, with patients

307   reporting that they received less than optimal communication from nurses about lifestyle

308   factors such as smoking, alcohol, weight loss, physical activity, nutrition and emotions.

309   Reduced communication by nurses about smoking cessation and reducing alcohol

310   consumption could be attributable to nurses being aware that not these factors may not have

311   been relevant for certain patients (e.g. patient has never smoked). Being able to communicate

312   about emotional well-being, however, should be widely applicable to all patients, and thus

313 should be a priority for nurses when explaining the physical, psychological and social burden

314 of CKD.

315

316 We also identified that overall there were few differences in patient satisfaction between male

317 and female patients, and between patients from different age groups. Some questions,

318 however, indicated a slight imbalance in patients' interactions with nurses, with females less

319 likely to be asked about smoking and alcohol, and males less likely to be asked about their

320 emotions. Similarly, older patients reported less discussion with the nurses about some

321 factors than younger patients. It is unclear whether these differences were due to nurses

322 making assumptions about the applicability of various topics based on age or gender, but

323 these findings highlight the need for a comprehensive discussion of all aspects of their CKD

324 management with all patients.

325

326 More than half of the participants in this study were aged over 70 years, and just under half

327 had no intermediate or school certificate. Given that only 17% of older Australians aged (65–

328 74) and 16% of those with year 10 or below education have been reported to have an

329 adequate level of health literacy (Australian Bureau of Statistics, 2006), the demographics of

330 our respondents highlights that, in CKD nurse-led clinics, it is necessary to use a range of

331 communication strategies to ensure patients understand their options and actively participate

332 in their health care decisions.

333

334 Patient familiarity with the nurse also had an effect on some aspects of patient satisfaction,

335 with those who had seen the nurse 1–4 times less likely to report the nurse discussed lifestyle

336 factors than those who had seen the nurse 5 or more times. This may indicate that a

337 discussion about lifestyle factors could have been a low priority for nurses during initial

338 visits, taking place instead after patients had already been seen several times. There were also

339 differences in how comfortable patients felt with the nurse and the nurse's knowledge of their

340 medical history. Interestingly, patients seen 5–9 times scored higher than not only those seen

341 1–4 times but also those seen >10 times. This suggests that, while a certain level of

342 familiarity with the nurse had a beneficial effect on patient satisfaction, many repeated visits

343 may have introduced a sense of "visit fatigue" which, combined with the progressive

344 deterioration of health seen in CKD, may have had a negative impact on satisfaction.

345

346 *Implications for Practice*

347 While patients are highly satisfied with most aspects of their experience of CKD nurse-led

348 clinics in QLD, this study identified gaps in some aspects of their care. Firstly, there is room

349 to improve the education provided and the strategies required to modify lifestyles. As CARI

350 (Caring for Australasians with Renal Impairment) guidelines recommend modification of

351 lifestyle and nutritional interventions for the management and slowing of the progression of

352 CKD (Kidney Health Australia—Caring for Australasians with Renal Impairment, 2012),

353 nurses ought to ensure that all patients attending CKD nurse-led clinics receive sufficient

354 consultation on these topics. While tailoring consultations to each individual is important,

355 given that younger patients reported receiving more lifestyle advice than older patients a

356 more standardised approach to imparting lifestyle information may be beneficial. Further, as

357 we showed that patients who had fewer clinic visits received less lifestyle consultation, this

358 should be made a priority during, if possible, the initial visit. Secondly, nurses should not

359 only focus on the physical aspects of CKD related to lifestyle modifications and adherence to

360 medication. They ought to routinely assess psychosocial well-being and to implement early,

361 brief interventions that better support patients' emotional wellbeing. Finally, there is also a

362 need for nurses to ensure that for all patients—regardless of age or gender—judgements

363   about whether information, education or support are less relevant should not be made until a

364   thorough assessment has been made.

365

366   *Limitations*

367   One possible limitation of this study is that patients tend to report approval of services in

368   patient satisfaction surveys (Pearson *et al.*, 1989). Whether due to acquiescence bias or social

369   desirability bias, this may have led to inflated satisfaction scores. However, the anonymous

370   nature of the survey should have minimised the latter. Further, patients may have self-

371   selected for those well satisfied with their experience of nurse-led clinics, as these may have

372   been highly motivated to return completed surveys. Patients in the higher range of kidney

373   function, on the other hand, may have been less likely to complete surveys, as their

374   appointments are less frequent; this may also have influenced results in this study. However,

375   conducting the study across several sites, and achieving a good response rate and sample size,

376   may have reduced these two previous limitations. As information on CKD stage and eGFR

377   was not collected in this study, it was not possible to correlate these with satisfaction scores;

378   this may of interest to perform in future studies.

379

380   **CONCLUSION**

381   This study found that patients were highly satisfied with nurse-led clinics in the management

382   of their ongoing CKD care, and also identified important gaps between evidence and practice

383   in some aspects. Our findings provide a basis for stakeholders to continue to work

384   collaboratively across QLD to implement and evaluate improvements.

385

386   **ACKNOWLEDGEMENTS**

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