A community survey of loneliness

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Background. Loneliness is associated with an increased incidence of a wide range of physical and mental health problems. The detection, prevention and amelioration of loneliness is an important public health issue for nurses.

Methods. This study reports findings from the 2002 Central Queensland Social Survey. The aims of the study were to (i) establish the extent of loneliness in a community sample; and (ii) to identify the factors that are predictors of loneliness. A random sample of 1241 subjects were interviewed by Computer-Assisted Telephone Interviewing. This interview included the Loneliness Scale formulated by De Jong Gierveld and Kamphuis.

Findings. Loneliness is a common phenomenon and risk factors include experience of domestic violence in current relationship, not having recent paid employment, not being married/partnered, and the number of children under 18 years in a household. Loneliness is not associated with higher rates of health care professional consultations.

Conclusion. Loneliness is a very common problem and should be seen as a major public health issue. Nurses, through a community capacity building framework, have a major role to play in the prevention of loneliness.

Keywords: loneliness, mental health, public health, nursing

Background

Loneliness is an important public health issue, which should feature highly in public health nursing practice. The experience of loneliness impacts on individuals across the life spectrum and has physical, psychological and social repercussions. As early as 1979, Berkman and Syme (1979) reported that socially isolated adults have higher rates of mortality over the succeeding 9 years than less isolated adults. This study was replicated by House et al. (1982) using physical examinations to assess health and confirmed that social isolation was a major risk factor for morbidity and mortality. The level of risk is equitable to that of obesity and possibly even smoking (Cacioppo et al. 2002). Cardiovascular activation and sleep dysfunction were two areas which warranted special attention in relation to the differences between lonely and non-lonely individuals, with greater problems being identified in the former (Cacioppo et al. 2002).
Loneliness is a significant risk factor for a wide range of physical illness including the common cold (Cohen et al. 1997) and heart diseases (Orth-Gomer et al. 1988, Sorkin et al. 2002). Cicchetti et al. (2002) suggest that the mechanisms linking loneliness and heart disease include higher peripheral resistance and age related increase in blood pressure. Loneliness is also a predictor of high levels of hospital emergency department use, independent of chronic illness (Geller et al. 1999). A 5 year follow up in a Nordic comparative study (Heikkinen et al. 2002) found that the clearest predictors of depressed mood in 75-year olds were loneliness, chronic diseases and self-rated health.

Loneliness may be part of a wider social phenomenon evident in contemporary society. Industrialized countries appear to be experiencing, what could almost be described as an epidemic of dissatisfaction with lifestyles. Life dissatisfaction seems to be a composite health and well-being indicator comprising of feelings of loneliness, disinterest in life, unhappiness, and a general unease of living (Koivumaa-Honkanen et al. 2002). Data from a Finnish Twin Cohort study, a national sample of adults aged 18–64 years (n = 29,173), found that dissatisfaction at baseline was associated with a threefold increase in the risk of suicide throughout the 20-year follow-up period (Koivumaa-Honkanen et al. 2002). Men with the highest degrees of dissatisfaction were more prone to commit suicide than satisfied men during the first 10 years of the follow-up period. Life dissatisfaction in this cohort remained a predictor for suicide even when adjusting for age, sex, baseline health status, alcohol consumption, smoking status, and physical activity. Loneliness is linked to anxiety and depression in asylum seekers (Silove et al. 1997) and to suicide in over 75-year olds (Waern et al. 2003). It has also been suggested that feelings of loneliness increase during periods of mental illness when positive psychotic symptoms are experienced. A cycle develops in which there is a loss of reciprocal ties and less satisfaction with social relationships (Angell & Test 2002).

Loneliness and physical health in older adults correlate highly but the predictive direction is unclear (Fees et al. 1999). Loneliness may, as has already been suggested, lead to ill health but also ill health may lead to loss of social contacts and eventually feelings of loneliness. Fees et al propose that loneliness is a mediator of anxiety and self-assessed health. Sogaard et al. (1996) examined the influence of employment status and presence of young children in the household on psychological health in a population of women aged 20–49 years. Their findings indicate that coping problems, dissatisfaction with life, depression and loneliness were greatest among homemakers, particularly among those with young children. Physically obese women have elevated loneliness scores and demonstrated ‘avoidance’ and ‘wait and see’ passive response patterns as coping behaviours (Horchner et al. 2002).

At the other end of the age spectrum, Murphy and Quesal (2002) argue that school bullying can lead to feelings of loneliness in children who stutter. General feelings of confidence and social interactions in school children are related to adolescent loneliness (Cheng & Furnham 2002). Cheng and Furnham found that personality traits, self-confidence, friendship and school-grades were all negatively correlated to the experience of loneliness. A general lack of confidence and poor social interactions in particular were related to self-reported loneliness in schoolchildren. Social interaction appears to be an especially important factor. In reviewing the literature in relation to the impact of friendship on the well-being of women, Knickmeyer et al. (2002) argue that women who maintain friendships with other women can be positively impacted by these friendships. The absence of friendships is linked to loneliness, depression and psychosomatic illness.

Most loneliness research has been within an individualist psychology framework with the role of culture and community often being overlooked (Rokach et al. 2002). Cultural background and beliefs can influence the extent to which people ‘feel’ lonely. In examining the influence of cultural background on the causes of loneliness, Rokach et al. (2002) found that North Americans scored higher on factors such as personal inadequacies, developmental deficits, unfulfilling intimate relations, relocation separation and social marginality than their Spanish equivalents. In another cross-cultural study Australian college students were more likely to report being lonely than South African students (Le Roux & Connors 2001). They suggest that the differences relate to the Australian students being better socialized in admitting and expressing their emotions than South African students. A culturally sensitive notion of loneliness suggests that data collected in one cultural context should be generalized across cultures with some degree of caution. Nevertheless, this methodological limitation aside, cultural and social perspectives of loneliness offer the potential for interventions, which are located at the community level rather than at the individual level. Consequently the potential for community nurses to play an important preventative role needs to be explored.

The theoretical framework employed in the current study was the theory of loneliness described by De Jong Gierveld (1998). De Jong Gierveld and Kamphuis (1985) conceptualize loneliness as a subjective experience of social isolation. Loneliness can be said to exist in situations where the number of relationships is smaller than desirable and also when the
level of intimacy an individual desires has not been achieved (De Jong Gierveld 1998). The main propositions in the theory are that (i) loneliness is a product of the discrepancy between what one wants in terms of interpersonal affection and intimacy and what one has; and (ii) the greater the discrepancy, the greater the loneliness. Background characteristics (such as marital status, sex and living arrangements), descriptive characteristics of the social network, number and frequency of contacts with network members, and personality and health have been proposed as important loneliness-provoking factors. Other factors include social norms and values, expectations of support associated with certain relationships, and a positive or negative evaluation of the network of relationships available to an individual.

Methods

The aims of the study were to establish the extent of loneliness in a community sample and to identify the factors that are predictors of loneliness. The study employed survey methods of a randomly selected sample of people living in Australia. The study received ethical approval from the University Human Research Ethics Committee.

Sampling

Data were collected in Central Queensland and sampling was a two-stage selection process involving: (i) Selection of households; and (ii) Selection of respondent within each household. The target population designated for telephone interviewing was all persons 18 years of age or older who, at the time of the survey, were living in a dwelling unit in the study area that could be contacted by direct-dialed, land-based telephone service. A random selection approach was used to ensure that all respondents had an equal chance to be contacted. The Population Research Laboratory at Central Queensland University holds a database of telephone numbers covering the entire region. The database is updated regularly and used for generating the survey sample. The sampling error is a measure of the validity of the descriptive statistics that are observed in a sample. Survey estimates of sampling error for the total sample of 1241 indicate that this is accurate within plus or minus 2.8 percentage points, at a 95% confidence interval (Babbie 1989). An overall response rate of 43.3% was achieved. The sample comprised of 624 males (50.28%) and 617 females (49.72%) with a mean age of 45-10 years (sd 15.44) and median of 44 years. The majority of the sample were married \( (n = 719) \), with smaller numbers being single \( (n = 242) \), cohabiting \( (n = 105) \), widowed \( (n = 75) \), divorced \( (n = 53) \), and separated but not divorced \( (n = 42) \).

Procedures

The survey sample was drawn from the telephone database by using a computer program to select, with replacement, a simple random sample of phone numbers. All duplicate, mobile and business numbers were purged from the computer-generated list. Nursing homes and collective dwellings were also deleted from the sample. Within the household, one eligible person was selected as the respondent for the 30-minute interview. A respondent within each household was selected on the basis of gender using the following selection guidelines to ensure an equal selection of male and female participants: (i) The dwelling unit must be the person’s usual place of residence and he/she must be 18 years of age or older; (ii) If an adult male answers the phone and is willing to be interviewed, he is the respondent; (iii) If an adult female answers the phone and there is an adult male present who is willing to be interviewed, interview the male. If the male is not willing to be interviewed, and the female is willing, interview the female; (iv) If an adult female answers the phone and there is no adult male present, choose her as the respondent. Past surveys have indicated that 60% of the time, the first household contact is female. Previous experience indicated that the respondent selection process worked best when calls were made in the evenings and on weekends.

Instrumentation

This survey was one element of the annual Central Queensland Social Survey. The survey instrument consisted of a standardized introduction; a range of questions (including the Loneliness Scale); and demographic questions. The questionnaire was pilot-tested by trained interviewers on a total of 15 randomly-selected households. Interviewer comments (e.g. confusing wording, inadequate response categories, question order effect, etc.) and pretest frequency distributions were reviewed by the researchers and funders of the survey before modifications were made to the questionnaire. Following the pretest, the electronic questionnaire was modified for the main data collection.

The Loneliness Scale is an 11-item unidimensional scale, consisting of negative and positive items. The scale measures severe feelings of loneliness as well as less intense loneliness feelings. The scale met the criteria of the dichotomous logistic Rasch model (De Jong Gierveld & Kamphuis 1985). The reliability of the scale in the current study was 0.79. The scale can be scored in a number of ways and for the current study dichotomized item scores were calculated for individual items. ‘Do Not Know’ responses were treated as neutral and therefore coded as not lonely. This produced a range of scores.
from 0 to 11, with >2 being cut-off point for lonely and not lonely, scores of 3–8 being classified as quite lonely, 9–10 being moderately lonely and those subjects scoring 11 being severely lonely. The scale can be recoded as a dichotomous variable (lonely or not lonely) (De Jong Gierveld & Kamphuis 1985). The dichotomous variable was employed in the logistic regression because of skewness of data.

Data collection

Data were collected through the 10-station Computer-Assisted Telephone Interviewing 3 (CATI) system (Sawtooth Software, Evanston, IL, USA) installed on a local area network. This system facilitates the exchange of information between interviewing personal computer (PC) stations and supervisor stations linked via a file server during the data collection period. Supervisors monitor call dispositions, field edit, validate and accumulate data for analysis. The sample database was also loaded into the CATI system that allocates telephone numbers to the interviewing stations. The question text and instructions were presented on the computer screen to the interviewer who asked the questions to the respondent over the telephone and then entered the given responses into the computer. CATI features such as the automatic routing of questions and built-in checks for inconsistencies and wild codes eliminated additional field editing. As the interviewers keyed in the responses directly into the computers, a continual monitoring of the closed-ended responses was possible.

If the interviewers were unsuccessful in establishing contact on their first call, a minimum of five callback attempts were made before declaring a telephone number as ‘no contact’. No data exists on those who were not contactable and consequently it is accepted that those contacted may differ from those who were not contacted in this study. Upon making contact, interviewers identified themselves, verified the telephone number, and then asked the screening questions for selecting the respondent. The response rate is a percentage representing the number of people participating in the survey divided by the number selected in the sample. The numerator is the number of completed interviews and the denominator includes completed interviews, incomplete interviews, refusals, language problems, those who were not available at a verified residential number and an estimate of eligible numbers out of the numbers that were dialled. Response rates for household surveys have been on the decline in recent years. Experience from previous annual surveys suggests that respondents in urban areas are increasingly subject to telephone calls for fundraising, market research or sales. As a result householders may be increasingly reluctant to participate in telephone surveys.

Data analysis

The data were tabulated and cleaned using the SPSS 11.5 for Windows statistical package. The data cleaning process included wildcard, discrepant value, and consistency checks. The resultant dataset contains 1241 cases with a total of 175 variables for each case, including 11 items from the Loneliness Scale. A SPSS system file with a dictionary was created for end users to analyse the data. Public access to the data file will be given 1 January 2004.

Data on the Loneliness Scale were skewed and therefore Spearman’s non-parametric test of association between age and scores on loneliness scale was performed. Logistic regression analysis was performed to identify predictors of loneliness. Loneliness was scored as a dichotomized variable (lonely operationally defined as loneliness scale score >2). Variables entered in the logistic regression were having paid employment the previous week; gender; marital status; experienced of domestic violence in current relationship, number of children under 18 years in household; and geographical location. Gender was coded male (1) and female (0). Marital status data was collapsed into two categories: married (1) and single (0) in analysis. Location was also conflated into two categories of rural (1) and non-rural (0). Age was not included in logistic regression because of relatively large number of missing data.

Findings

The majority of subjects reported not being lonely (n = 798; 64.3%), but a sizeable number of subjects did report being lonely (n = 443; 35.7%). Of those subjects who reported being lonely, 407 (32.8%) were quite lonely, 30 (2.4%) were moderately lonely, and six (0.55%) were severely lonely. The mean score for the sample was 2.29 (SD 2.47) with a median of 1.00.

The most commonly reported problems included missing having a really good friend, missing the pleasure of company of others, people who can be trusted, having people around and experiencing a general sense of emptiness (Table 1).

Most subjects did not report experiencing violence in their current relationship (n = 1148; 92.6%) whilst a minority had experienced violence (n = 71; 5.7%) whilst 760 (61.2%) had paid employment in last week and 480 (38.7%) had no paid employment in this period. A logistic regression, using Forward Wald method, on the dependent variable loneliness was conducted. Loneliness for this purpose was scored as a
dichotomous variable. Geographical location (rural and non-rural) and gender were excluded at step 0 of the analysis as not being significant predictors of loneliness and were therefore not included in the final analytical model. Marital status, domestic violence, paid work in last week and number of children in the house were all included in final model (Table 2). The goodness to fit statistic $\chi^2 = 6.795$, d.f. = 6, $P = 0.340$ and model chi-square ($\chi^2 = 58.86$, d.f. = 4) indicate a satisfactory fit for the final model. The results indicate that significant predictors of loneliness in this model are: having experienced domestic violence in current relationship; marital status; having paid work in the last week; and the number of children under 18 years in the household. The model predicts 66.4% of the responses correctly.

Those subjects who had experienced domestic violence in a current relationship [odds ratio (OR) 2.89, 95% CI 1.70–4.91] and the number of children under 18 years in the household (OR 1.11, 95% CI 1.00–1.24) were more likely to be lonely. Variables which predicted lower levels of loneliness and appeared to offer some protection against being lonely are being in a married/cohabiting relationship (OR 0.46, 95% CI 0.35–0.60), and being in paid employment last week (OR 0.73, 95% CI 0.56–0.94). Age was not significantly correlated with scores on Loneliness Scale ($r = 0.007$, $P = 0.752$). There were no differences between those subjects who were not lonely and those who were lonely in the numbers visiting their general medical practitioner or other health practitioner during the previous year ($\chi^2 = 1.494$, d.f. = 1, $P = 0.220$) with a Relative Risk 1.03, 95% CI 0.98–1.07.

### Conclusion

The claim that loneliness is a pervasive experience (Rokach & Brock 1997) finds support in this study, when over one third of all respondents reported some level of loneliness. This high prevalence points to the importance of taking loneliness seriously as a threat to public health. Most of those reporting some level of loneliness were in the quite lonely category with a small number reporting high level of loneliness. The cross-sectional nature of data collection leaves open the question about whether loneliness is a phenomenon that we all experience at some point in our lives but is simply a temporary state, which as circumstances change dissipates. Hsu et al. (1987) suggest that whilst this may be true for many, for a significant number of people it is a constant and persistent feature of their lives.

Being in a married or cohabiting relationship was linked to lower odds of being lonely. Marriage has previously been associated with a lowered risk of loneliness (Rokach et al. 2002). Rokach et al suggest that marriage operates as a protective factor. Being in paid employment in the previous week was also linked to lower levels of loneliness. Employment provides individuals with opportunities for contact outside the home, opportunities to have one’s self-worth re-affirmed and financial remuneration. Unemployment has consistently been shown to be linked to increased risks of anxiety and affective disorders (Comino et al. 2003). Qin et al. (2003) report that being single, unemployed and having a low income are linked to increased risk of suicide. These findings give some support to a possible link between socioeconomic factors, loneliness and suicide.

### Table 1 Description of individual scale items

<table>
<thead>
<tr>
<th>Variable</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is always somebody I can talk to about my day-to-day problems</td>
<td>254</td>
<td>828</td>
<td>133</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>I miss having a really good friend</td>
<td>71</td>
<td>324</td>
<td>712</td>
<td>104</td>
<td>30</td>
</tr>
<tr>
<td>I experience a general sense of emptiness</td>
<td>30</td>
<td>198</td>
<td>827</td>
<td>153</td>
<td>33</td>
</tr>
<tr>
<td>There are plenty of people I can lean on when I have problems</td>
<td>203</td>
<td>803</td>
<td>180</td>
<td>15</td>
<td>40</td>
</tr>
<tr>
<td>I miss the pleasure of the company of others</td>
<td>42</td>
<td>319</td>
<td>756</td>
<td>89</td>
<td>35</td>
</tr>
<tr>
<td>I find my circle of friends and acquaintances too limited</td>
<td>26</td>
<td>279</td>
<td>827</td>
<td>83</td>
<td>26</td>
</tr>
<tr>
<td>There are many people I can trust completely</td>
<td>81</td>
<td>588</td>
<td>468</td>
<td>57</td>
<td>47</td>
</tr>
<tr>
<td>There are enough people I feel close to</td>
<td>115</td>
<td>964</td>
<td>131</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>I miss having people around</td>
<td>32</td>
<td>287</td>
<td>803</td>
<td>74</td>
<td>45</td>
</tr>
<tr>
<td>I often feel rejected</td>
<td>13</td>
<td>125</td>
<td>909</td>
<td>164</td>
<td>30</td>
</tr>
<tr>
<td>I can call on my friends whenever I need them</td>
<td>163</td>
<td>967</td>
<td>87</td>
<td>6</td>
<td>18</td>
</tr>
</tbody>
</table>

### Table 2 Logistic regression of loneliness

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>SE</th>
<th>OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td>-0.172</td>
<td>0.036</td>
<td>0.46 (0.35–0.60)</td>
<td>0.000</td>
</tr>
<tr>
<td>Domestic violence</td>
<td>-1.062</td>
<td>0.270</td>
<td>2.89 (1.70–4.91)</td>
<td>0.000</td>
</tr>
<tr>
<td>Paid work in last week</td>
<td>-0.321</td>
<td>0.129</td>
<td>0.73 (0.56–0.94)</td>
<td>0.013</td>
</tr>
<tr>
<td>Number of children in house</td>
<td>0.108</td>
<td>0.054</td>
<td>1.11 (1.00–1.24)</td>
<td>0.047</td>
</tr>
</tbody>
</table>

What is already known about this topic

- Loneliness is associated with an increased incidence of physical and mental health problems.
- Nurses have a potentially important role to play in the detection and prevention of loneliness.

What this paper adds

- Loneliness is a common problem with nearly two thirds of the community study sample reporting some feelings of loneliness.
- Risk factors include experience of domestic violence in a current relationship, not having recent paid employment, not being married/partnered, and the number of children under 18 years in a household.
- Future research should model the relationship between loneliness, community cohesion and wellbeing.

Marriage but not parenthood has previously been reported as offering some degree of protection against loneliness (Rokach et al. 2002). Findings from this current study indicate that the number of children under 18 years living in a household is a predictor of loneliness. The increase in loneliness associated with this factor is relatively small. This finding is consistent with the sociological model of depression proposed by Brown and Harris (1978). They suggest that having many children reduced the likelihood of individuals, mostly women, having a social and employment life outside the home. The largest predictor of loneliness was having experience of domestic violence in a current relationship. Domestic violence is associated with an increased risk of depressive symptoms (Coker et al. 2002). The model proposed in the current study suggests that circumstances that prevent the development of adult relationships outwith the home may be predictive of loneliness and conversely lower risk of loneliness is associated with opportunities for non-domestic social interaction with an appropriate peer group. Role theory proposes that individuals who have fewer sources of gratification in their lives are vulnerable and at greater risk of suffering psychological problems (Repetti & Crosby 1984).

Living in a rural area is not a predictor of loneliness and therefore the assumption that geographical isolation is a necessary and sufficient condition for loneliness is not supported. Opportunities for meaningful interactions with others are likely to be as available in rural areas as they are in non-rural areas. The factors associated with degrees of loneliness are consistent with the theory of loneliness underpinning the current study (De Jong Gierveld & Kamphuis 1985).

Loneliness did not predict higher levels of health care professional consultations. Loneliness may not be seen as a pathological state but seen by individuals as an understandable, although unwelcome, feature of their lives. Interventions, which simply react to cases as they present to healthcare professionals, may be ineffective and may only pick-up cases at a very late stage when other health problems have developed. Blazer (2002) argues that loneliness is a common experience in later life and that targeting it for interventions addresses a primary risk reduction for depression and overall mental health. Nurses working in public health and primary care sectors have a direct and indirect role in the prevention and detection of loneliness. A direct intervention may be through the provision of a combination of health education and low-intensity exercise which has been shown to produce an improvement in older adults feelings of loneliness which is still evident after 6 months (Hopman-Rock & Westhoff 2002). A more indirect intervention would be through nurse-led community building interventions. A meta-analysis of the effectiveness of community-based prevention and early detection programmes indicates that such programmes do in fact build trust and reciprocity, develop networks and lead to healthier communities (Gauntlett et al. 2001). Best practice in early detection and prevention share many commonalities with best practice in community building. The role of community and family health nurses in increasing levels of social capital through community capacity building has not received the attention it merits. Social capital is the development of relationships and community networks that make for a healthy society. Any community activity may best be structured in a way that targets those people who experience risk factors such as domestic violence and those living alone.

Author contributions

All listed authors have contributed directly to this study and this paper. WL and KM contributed to the study conception and design. KM was responsible for the data collection and WL and SS contributed to the data analysis. WL and SS were responsible for drafting the paper and all authors were involved in revising the manuscript.

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