

# Self-care in Relation to Informal and Formal Care\*

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## *ABSTRACT*

This paper examines the prevalence, inter-relationships and correlates of various forms of self, informal and formal care. Analyses of data drawn from a random sample of 743 non-institutionalised elderly individuals living in Winnipeg, Manitoba reveal similarities as well as differences among the three types of care. Self- and formal care are somewhat similar, being positively related and having similar correlates. Nevertheless, substitutability as a consequence of medical scepticism is also evident. Both are unrelated to informal care. It is poor health in the form of functional disability and the availability of support through the marital relationship which are the strongest correlates of informal care. In contrast, health (chronic conditions and perceived health status) as well as beliefs in the efficacy of both preventative health behaviours and medical services are among the strongest correlates of self- and formal care.

## **Introduction**

Attention to the health professions, in particular physicians, in the study of health in the social sciences has been evident for a number of decades now. This is so despite the fact that self-care has been documented as the most prevalent form of care utilised.<sup>1</sup> Recently, the prevalence of informal support to elders has also been well docu-

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mented.<sup>2,3</sup> The area of informal support is a growing one in gerontology and interest in formal health care continues. Some interest is evident in self-care but it could not yet be regarded as rampant. However, despite the recognition of these three aspects of health care, seldom do researchers examine the inter-relationships between self-care, informal care, and formal care. That is the task of this paper.

### Literature review

The predominance of the formal, professional health care system over matters of health and illness is widely documented. Medical knowledge about illness and its treatment is generally regarded as authoritative. Consistent with this view, medicine has been granted an exclusive and 'officially approved monopoly of the right to define health and illness and treat illness'.<sup>4</sup> Formally organised systems for the delivery of health care in modern industrialised societies are, as a result, largely medically-focused and centre around the provision of physician services and short-term institutional care.<sup>5,6</sup> It is estimated, for example, that physicians control approximately 80% of the total insured costs of health care in Canada.<sup>7,8</sup>

While formal services assume a major role in modern health care, how this formal system operates relative to informal (self and lay) systems of care is less apparent. Some investigators contend that responsibility for health is increasingly concentrated in the hands of the formal care system. According to Illich,<sup>9</sup> for example, the continuing expansion of medicine in the definition of more and more aspects of life in medical terms (such as pregnancy, alcoholism, mental illness) erodes autonomy for self-care as well as community processes for mutual care. Helman agrees there has been a decline in personal responsibility over health and illness as a consequence of lay acceptance of medical concepts regarding illness causation.<sup>10</sup> Finally, proponents of modernisation theory postulate a gradual transfer or substitution of responsibility for health care from familial to specialised formal sources as society becomes increasingly modern and industrial.<sup>11</sup>

However, research reveals little support for claims regarding the substitution of formal for informal sources of care. Rather, it points to the continuing importance of the latter in all matters related to health and illness. It has been noted, for example, that although non-professional care represents a 'hidden health care system', approximately 75% of all health care is conducted without professional involvement.<sup>12,13</sup> Moreover, where professional involvement is evident, it seldom precedes or excludes the use of informal patterns of care.<sup>14,15</sup>

Research findings confirm the importance of the informal network for the provision of care. Sussman describes the family as an all-purpose caretaking system which responds in service and in kind when individual members request and/or require assistance.<sup>16</sup> Conventional estimates indicate that approximately 80% of all direct care provided to elderly individuals comes from informal sources and primarily, from family members. Approximately 90% of those elderly individuals with functional health limitations are said to rely either in whole or in part on informal patterns of care.<sup>17-20</sup> The types of care provided vary widely and include emotional support, assistance with basic activities such as eating, bathing and nursing care as well as with instrumental tasks such as shopping, housekeeping and transportation.

According to Dean, it is self-care which nevertheless continues to represent the basic level of care in health and illness,<sup>21,22</sup> in all age groups,<sup>23</sup> and all societies.<sup>24,25</sup> In contrast with assumptions concerning the primary role of the formal health care system for individual health care, she and others contend that it is not self-care which is residual and which supplements professional care but rather, the reverse.

However, the precise nature of relationships among self, informal and formal care remains to be adequately specified. As noted by Levin, Katz and Holst, 'efforts to isolate and relate self-care behaviour to professional care are... hampered by a prevailing lack of agreement on definition and differences about whether it is a significant component of health care as a whole'.<sup>26</sup> The concept of self-care, in particular, lacks consensual definition. As a result, the extent to which individuals engage in self-care and the extent to which this can be said to be independent of the care provided by other informal and formal sources is not clear.

Some view them as representing mutually exclusive and, by implication, competitive options for care. Haug, for example, conceptualises self-care as being the opposite of professional care based on the view that it is the absence of professional contact which serves to differentiate self from formal care.<sup>27</sup> Consistent with this perspective, its operational definition focuses on individual failures to consult a physician when confronted with symptoms thought to justify such consultation.<sup>28</sup>

While Haug does not distinguish between self and other forms of lay care and restricts self-care to situations in which individuals assume responsibility for activities considered within the scope of expertise of health professionals, others propose more general definitions.<sup>29</sup> According to Levin and Idler, for example, self-care refers to activities undertaken by individuals in order to promote their own health, prevent their own disease, limit their own illness, and restore their own

health.<sup>30</sup> Unlike Haug, these authors include a range of health and illness-related behaviours within the scope of the concept. However, they too restrict self-care to activities engaged in without direct professional assistance, noting that 'the generic attribute of self-care is its non-professional, non-bureaucratic, non-industrial character'.<sup>31</sup> Based on the view that self-care includes a variety of behaviours linked to health as well as illness, these authors assert that self-care includes behaviours which not only substitute for professional care but which also serve to supplement such care.<sup>32</sup>

Dean further expands the scope of the concept so as to include not only aspects of professional care as well as care provided within informal social networks but also, cognitive processes of evaluation and decision-making as well as behavioural activities directed towards health and illness.<sup>33</sup> As a consequence, it encompasses not only action but also inaction on the part of the individual. As noted:

Self-care involves the range of activities individuals undertake to enhance health, prevent disease, evaluate symptoms and restore health. These activities are undertaken by lay people on their own behalf, either separately or in participation with professionals. Self-care includes decisions to do nothing, self-determined actions to promote health or treat illness and decisions to seek advice in lay, professional and alternative care networks, as well as evaluation of and decisions regarding action based on that advice.<sup>34</sup>

It is difficult to determine what is excluded from the concept of self-care. Nevertheless, according to Dean,<sup>35</sup> and Hickey, Dean and Holstein,<sup>36</sup> self-care represents one level of care which interacts with other complementary forms of health care. Substitution is also possible. As noted, 'lay care precedes, substitutes for, influences, evaluates, and finally complies with (or does not comply with) professional directives'.<sup>37</sup>

However, the extent to which self, informal, and formal care actually serve to substitute for one another or alternatively, to supplement and/or complement one another is unknown. Some research lends support to a substitution hypothesis. Findings reported by Dunnell and Cartwright,<sup>38</sup> for example, suggest that self-medication may serve as an alternative to medical contact. Fleming *et al.* report negative correlations between involvement in self-care and physician and hospital utilisation.<sup>39</sup> Similarly, Anderson *et al.* and Bush and Rabin report less self-treatment among individuals using physician services and less consultation and use of prescription drugs among those using non-prescribed medications.<sup>40, 41</sup>

Substitution may also be a factor within more limited social contexts.

While formal service utilisation has been noted to be greater among those with higher levels of education<sup>42</sup> and those with greater access to services,<sup>43</sup> self-care has been reported as more extensive among those reporting a lack of access to services.<sup>44</sup> These findings suggest that self-care may be used to substitute for formal services among those who are disadvantaged with respect to the formal system. That this is the case is further supported by findings reported by Dean, Holst and Wagner indicating that it is individuals with lower levels of education and income who more often maintain their normal routines when ill.<sup>45</sup> However, contradictory findings are also evident. Findings reported by Segall,<sup>46</sup> for example, indicate a positive impact of education on self-care responses to symptoms of illness.

Substitution may also emerge as a consequence of individual attitudes regarding health and health care. It has been reported that those who are more sceptical of medical care make greater use of self-care in response to symptoms of illness.<sup>47</sup> The importance of individual beliefs in the efficacy of self-care and desire for self-management have also been noted and suggest that for those adhering to such beliefs, self-care may be more strongly relied upon as a substitute for formal systems of care.<sup>48</sup> Locus of control has emerged as particularly important in this literature. It is defined as the expectancy that reinforcement is controlled by the individual (internal) or by outside forces (external). Wallston *et al.*<sup>49</sup> developed health locus of control scales with three dimensions: internal health locus of control; external control by others such as physicians; and external control by chance. Lau proposed three similar dimensions.<sup>50</sup>

Yet other findings point to complementary relationships among the different types of care. It has been noted, for example, that it is the more common illnesses which often do not result in medical contact and that it is those symptoms which are considered more serious which are the most likely to result in formal health care use.<sup>51</sup> Need for care is widely reported to be the most important predictor of medical service utilisation.<sup>52-54</sup> Evidence which reveals differences in the types of symptoms for which self-care tends to be used and for which professional care is sought<sup>55</sup> further suggests that self-care and professional care may be considered more or less appropriate across different health and illness situations and thereby serve as distinctive though complementary forms of health care.

This paper examines the relationships between self and informal (self and lay) care in order to determine what, if any, evidence there is to support these findings. It represents a partial replication and extension of an earlier study conducted using data drawn from a pilot study on

decision-making and formal service utilisation. Attention is focused on the prevalence of the three types of care, their interrelationships and correlates.

### Data and methodology

Data for these analyses are drawn from a study of decision-making by the elderly and their use of health care services. A random sample of 743 non-institutionalised respondents aged 60 and over living in Winnipeg, Manitoba, Canada, were interviewed in the spring and summer of 1985. The response rate was 75%.<sup>56</sup>

An examination of sample characteristics (Table 1) reveals that, consistent with the distribution of males and females in the elderly population, over half (59%) of the sample is female. The majority (72%) are under 75 years of age with 60% currently married and 27% widowed. Most (56%) of those interviewed were born in Manitoba with the vast majority (91%) having lived in Winnipeg for 20 years or more. Just under a third (30%) were born outside of Canada. In terms of education, 16% report less than 7 years of schooling, 68% report 7-12 years, and 16% report more than a high school education. A minority (17%) report professional or high level management occupations while 28% report low level management, skilled trade or technical occupations, 33% report semi-skilled, unskilled or farm occupations, and 22% report occupations as homemakers. These characteristics approximate those of the elderly population in Winnipeg, Manitoba.

These data are used to examine the relationships among self-, informal, and formal care and to investigate and compare the correlates of each. Among the correlates most frequently examined in relation to the utilisation of health-care systems and included within these analyses are sociodemographic characteristics (age, gender, marital status, and education), characteristics of the social network (size and frequency of contact), health beliefs (the importance accorded to preventive health behaviours and health locus of control orientation) and health status (chronic conditions, functional disability, and perceived health).

Functional disability is operationalised on the basis of individuals' reports concerning the extent of their ability (irrespective of assistance received) to engage in a variety of basic and instrumental activities of daily living. These include: using the telephone, shopping for groceries and clothing, preparing meals, performing household tasks and chores, handling financial matters, dressing, bathing, walking, using the toilet,

TABLE 1. *Selected characteristics*

	n	%
Gender		
Male	305	41
Female	438	59
	743	100
Age		
60-64	175	24
65-69	201	27
70-74	158	21
75-79	112	15
80-84	61	8
85-89	27	4
90+	9	1
	743	100
Place of birth		
Manitoba	413	56
Other Canadian province	109	15
Other English speaking country	78	11
Other country	143	19
	743	101
Time in Winnipeg		
Entire life	212	29
≥ 20 years	466	63
< 20 years	63	9
	741	101
Preferred religion		
Catholic	200	27
Protestant	402	54
Other/no preference	140	19
	742	100
Years of schooling		
0-8	248	35
9-12	355	50
13+	111	16
	714	101
Marital status		
Single/separated/divorced	93	13
Married	450	61
Widowed	200	27
	743	101
Currently employed		
No	621	84
Part-time/occasional	42	6
Full-time	80	11
	743	101
Major occupation in life:		
Professional/high level management	129	17
Low level management/skills, technical	204	28
Semi-skilled/unskilled/farm labourer	246	33
Housewife	164	22
	743	100

taking out the trash, and taking medicine. Responses to the individual items are summed and averaged to yield an index of functional disability ranging from 1.00 (no functional disability) through 4.00 (total functional disability). Inter-item reliability for this measure reaches 0.89.

Chronic illness is measured by asking respondents about their experience with the following conditions: heart and circulation problems, strokes, arthritis and rheumatism, Palsy/Parkinson's disease, eye trouble not relieved by glasses, ear trouble, dental problems, chest problems, stomach trouble, kidney problems, diabetes, foot problems, nerve problems and skin problems. Conditions which respondents report having experienced within the last year or which, although experienced at an earlier time, continue to have an effect, are summed.<sup>57</sup>

In order to assess perceived health status, respondents were asked to evaluate their health relative to others of their own age. Responses were coded as excellent, good, fair, poor, or bad. Relatively few respondents perceived their health to be either poor (6%) or bad (2%) and these responses were combined. A higher score on this measure indicates a poorer conception of health status relative to others.

The impact of the social network on care is examined using two separate indicators. First, the total number of people in the individual's informal social network is used to provide a summary measure of availability or potential for support from informal sources. Second, an indicator of associational support<sup>58</sup> measures the average frequency of interaction the respondents have with others in their informal networks.

Two general aspects of health beliefs are included. The first taps the importance attributed by the respondents to a variety of preventative health behaviours. Respondents were asked to indicate how important they considered each of the following to be to their overall health, irrespective of whether they actually engaged in them: regular exercise, taking vitamins, prayer and faith, having close friends, avoiding stress, diet and nutrition, positive thinking, avoiding germs, avoiding smoking, using car seat belts, and getting routine medical check ups. Responses were coded as: (1) not at all important; (2) somewhat important; and (3) very important. Inter-item reliability ( $\alpha$ ) was 0.70. A summary measure consisting of the mean response across all eleven items was used.

Respondents were asked to indicate the extent of their agreement or disagreement with a series of statements designed to assess health-specific locus of control beliefs.<sup>59, 60</sup> Based on the results of factor analysis (principal axis, varimax rotation) three main factors were

identified: external control by chance; internal control by self; and medical scepticism. Items loading most strongly on each factor (i.e. having factor loadings exceeding 0.30) were combined and separate indices created. Higher scores reflect a greater belief in the importance of chance factors on health, a greater belief in the efficacy of self control over health, and greater scepticism regarding physician-based medical care.

While the self-control dimension demonstrates a positive correlation ( $r = 0.18$ ;  $P < 0.000$ ) with the perceived importance of preventive health behaviours, both the chance control and medical scepticism measures display negative correlations ( $r = -0.09$ ;  $P < 0.05$  for chance control and  $r = -0.11$ ;  $P < 0.01$  with medical scepticism). Not surprisingly, those who regard preventive health care activities as being more important are also more likely to assume greater personal responsibility and control over health matters and also to minimise the importance of chance factors on health. In addition, they show less scepticism about medical care than do those who attribute less importance to preventive medical care.

The dependent variables include self-care, informal care, and formal care. While self-care has been variously conceptualised and operationalised within the literature, these analyses rely on a measure of self-care responses to common ailment symptomatology. Respondents were given a list of ten symptoms and, for each, were asked whether they had ever had the symptom, as well as what their initial response was or would be (if the situation was hypothetical). In particular, they were asked whether they did or would do nothing, treat themselves, or contact a health professional immediately. The symptoms included feelings of dizziness, bowel irregularity, constant tiredness, frequent headaches, a rash or itch, shortness of breath, difficulties sleeping, loss of appetite, an upset stomach, and depression. In order to be considered as a form of self-care, respondents had to indicate a change in behaviour as a result of the symptom. Therefore, if they indicated that they did nothing as a response, this was not coded as self-care. However, if they indicated taking it easy as a response, this was regarded as self-care.

All symptomatology which respondents reported having experienced and for which their initial response was reported to be any form of self-care (taking it easy, altering diet, applying heat or ointment, etc.) were summed and averaged, yielding an overall measure of self-care responses to symptomatology. Hypothetical responses were excluded on the basis of findings suggesting these responses may lack validity as indicators of actual self-care behaviour.<sup>61</sup> Responses are

coded such that a higher score reveals a greater number of symptoms to which the respondent reported initially responding with some form of self-care.

A measure of informal care is based on the number of types of helpers (i.e. child, spouse, friend, other relative) in the informal network who are providing assistance in cases for which the respondent is unable to perform a given activity of daily living (including using the telephone, shopping, preparing meals, doing household tasks, handling finances, dressing, eating, bathing, walking and using the toilet). It is therefore tied to functional disability and this is reflected in the correlation between the two ( $r = 0.63$ ). Information regarding the receipt of assistance is available if the respondent indicates some disability in performing basic or instrumental activities of daily living. If respondents report that they are able to prepare meals but in fact do not, this is not considered assistance but rather, division of labour.

Formal care is assessed on the basis of the respondents' reported use of health services over the past six months. These services include: general practitioner, medical specialist, emergency clinic, other hospital services, medical labs, pharmacist, public health nurse, and home care. When combined into a summative index of the number of health services used, the inter-item reliability of this eight-item measure is 0.60. That is, the measure of formal services includes the utilisation of a wide variety of services. However, the measure of informal care refers only to one specific area. Similarly, the examination of self-care is restricted only to one area. Both measures assure variability however. Informal care is examined for activities of daily living and it is known that this is an area where support is likely to be received. Self-care is examined for common ailments, an area where self-care is relatively likely to be implemented. However, to the extent that neither informal care nor self-care have been examined for all areas within elders' lives, both are underestimated in this paper. This should be taken into account when interpreting the findings.

Data analysis begins with an examination of the relative prevalence of self, informal, and formal care and proceeds to an investigation of the correlations among them. Finally, the correlates of each are examined. Analyses are conducted separately for those with and without functional disability to permit comparison of self and formal care with informal care. As noted, our measure of informal care is tied to functional disability and, as a result, analyses using this variable are limited to those with such disability.

## Findings

### *The prevalence of self-, informal, and formal care*

The vast majority of individuals reportedly engage in some form of self-care as an initial response to symptoms of illness. In fact, over 85 % of the sample reports some type of self-care as their initial response to at least one of the symptoms considered. The proportion who report initial use of self-care varies, from greater than 80 % of those experiencing frequent headaches or bowel irregularity and over 70 % of those confronted with problems of feelings of tiredness, indigestion, difficulties sleeping, or shortness of breath, to over half of those experiencing a rash or itch, dizziness, or depression. For only one of the ten symptoms (loss of appetite) do less than half (46 %) of those experiencing the condition respond initially through self-care.

One-third (33 %) of the respondents report some disability. Respondents are most likely to report requiring assistance with shopping (21 %) and housework (18 %). Somewhat fewer report the need for assistance with such activities as cooking (11 %), bathing (10 %), walking (10 %), looking after finances (9 %) or taking out the garbage (8 %), while the need for assistance in such areas as dressing (6 %), eating (1 %) and taking medications (3 %) is relatively rare.

Most (80 %) of those with disability report receiving care from informal sources such as family members or friends. This is particularly true in terms of such tasks as shopping, taking medications, looking after one's finances and taking out the garbage, where upwards of 80–90 % of those requiring assistance receive it from informal sources. Other areas in which the informal network tends to be frequently involved include providing assistance with cooking (where 69 % of those requiring assistance receive it from informal sources), housework (63 %) and use of the telephone (65 %). Areas in which respondents' needs for assistance are least likely to be met through the informal network include personal care tasks such as bathing (29 % of those requiring it receive informal assistance), walking (37 %), dressing (39 %) and use of the toilet (17 %).

The prevalence of formal health service utilisation parallels that for the use of self-health care. That is, the vast majority of respondents (85 %) report some utilisation of formal health care services within the six months preceding the interview. The average number of services used during this period is 2.3 with almost half of the sample (47 %) reporting the use of three or more such services over the six months. In terms of individual services, it is physician and pharmacist services

TABLE 2. *Self-, informal and formal care: zero order and partial correlations*

	Zero order <i>r</i>	Partial <i>r</i>
Self × informal <sup>a</sup>	0.00	—
Self × formal	0.23***	—
Informal × formal <sup>a</sup>	-0.01	—
Self × formal, chronic	—	0.08*
Self × formal, funct	—	0.19***
Self × formal, Phealth	—	0.14***
Self × formal, chronic funct	—	0.07
Self × formal, funct Phealth	—	0.12***
Self × formal, chronic Phealth	—	0.05
Self × formal, chronic funct Phealth	—	0.05

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .<sup>a</sup> Sample limited to those with functional disabilities.

which are most prevalent, having been used by 61 % and 63 % of the respondents respectively. Medical laboratory services are also rather frequently reported (44 %) as are the services provided by medical specialists (35 %). The remaining services are considerably less prevalent, with each one being used by 10 % or less of the sample within the preceding six months.

#### *Relationships among self-, informal and formal care*

An examination of the correlations among the different types of care suggests that among those with functional disability, informal care is related neither to self-care nor to formal care. This confirms previous findings,<sup>62</sup> and suggests that the extent of care received from family members or friends in order to cope with disabilities is unrelated to individuals' self-care health practices or to their utilisation of formal health services.

In contrast, self-care responses to common symptomatology are positively correlated with formal medical service use. Those engaging in more extensive use of self-care when confronted with symptoms of common ailments also make greater use of formal health services. However, as the results reported in Table 2 suggest, the positive correlation between self-care and formal care appears to be a result of their mutual relationship with objective and perceived health status (and particularly, with chronic conditions). Both self-care for common ailments and utilisation of formal health services tend to be greater among those having poorer levels of health.

TABLE 3. *Correlates of self-care*

Independent variables	<i>B</i>	$\beta$	$r^2$	<i>F</i>	<i>P</i>
(a) Sample as a whole					
Chronic conditions	0.04	0.31	0.16	64.97	0.000
Preventive health behaviours	0.09	0.14	0.02	15.65	0.000
Perceived health	0.04	0.14	0.02	12.96	0.000
Gender (female)	0.06	0.13	0.02	13.41	0.000
Medical scepticism	0.03	0.07	0.00	3.89	0.049
$F = 36.61$ ; d.f. = 5, 658; $P = 0.000$ ; $r^2 = 0.22$					
(b) Subsample with functional disability					
Chronic conditions	0.03	0.25	0.11	14.49	0.000
Perceived health	0.06	0.24	0.05	13.13	0.000
Gender (female)	0.07	0.14	0.02	5.07	0.025
$F = 15.73$ ; d.f. = 3, 211; $P = 0.000$ ; $r^2 = 0.18$					
(c) Subsample without functional disability					
Chronic conditions	0.04	0.33	0.11	58.17	0.000
Preventive health behaviours	0.11	0.18	0.04	17.48	0.000
Gender (female)	0.05	0.11	0.01	6.72	0.010
$F = 29.02$ ; d.f. = 3, 445; $P = 0.000$ ; $r^2 = 0.16$					

Note. Only statistically significant correlates of self-care are shown.

#### *Correlates of self-, informal and formal care*

Those factors which emerge as correlates of self-care responses to symptomatology include health, health beliefs and gender (see Table 3). Those with more chronic conditions and lower levels of perceived health report greater initial use of self-care when confronted with symptoms of illness. In addition, however, those who accord greater importance to preventive health behaviours, who express greater scepticism of physician-based medical care, and women rather than men, also report more extensive use of self-care. Taken together, these variables account for 22 % of the variance in self-care health behaviours.

The emergence of chronic conditions and perceptions of health confirm the significance of objective and subjective health concerns for generating self-health care. The additional importance attributed to preventive health care, however, suggests that while self-care is engaged in to ameliorate objective and perceived health problems, it is nevertheless also used as a preventive measure.

The particular importance of perceived health to those with disability and of beliefs concerning preventive health behaviours to those without disability suggests that for those with disability, self-care

TABLE 4. *Correlates of informal care*

Independent variables	B	$\beta$	$r^2$	F	P
Subsample with functional disability					
Functional disability	0.35	0.31	0.10	23.67	0.000
Widowhood	-0.29	-0.29	0.05	20.18	0.000
Single	-0.32	-0.21	0.05	10.21	0.002
Education	-0.02	-0.17	0.03	6.87	0.009
$F = 15.22$ ; d.f. = 4, 210; $P = 0.000$ ; $r^2 = 0.22$					

Note. Only statistically significant correlates of informal care are shown. Comparable analyses are not available for the total sample or for those without functional disability.

strategies may be employed in order to ameliorate health problems while for those without disability, its use represents a preventive strategy for personal health care.

As noted previously, our measure of informal care is tied to functional disability. The results of analyses confined to those with such disability are reported in Table 4. They reveal that among those with disability, the extent of care received is predicted not only by the level of disability, but also by marital status and education. The fact that widowed and single respondents receive less care than those who are married attests to the primary importance of the spouse for the provision of care. The negative impact of education supports the common finding that those of lower economic status tend to have larger helping networks.

Turning to formal care, the findings point to the particular importance of health, health beliefs, and marital status for predicting utilisation (Table 5). In terms of health and health beliefs, it is those with more chronic conditions, greater functional disability, lower levels of perceived health, who attribute greater importance to preventive health behaviours and who reveal less scepticism of medical care who make more extensive use of formal health-care services.

The correlation with health confirms the primary importance of need factors (both objective and perceived) for determining utilisation. However, the added significance of health beliefs suggests that utilisation is by no means based solely on need. Rather, given a defined level of objective and perceived need for service, utilisation is also a function of one's views regarding health and medical care and one's level of integration within the informal network, as indexed by marital status. As one might expect, given the importance of the spouse for provision of assistance, being widowed is associated with more extensive formal service use.

TABLE 5. *Correlates of formal care*

Independent variables	B	$\beta$	$r^2$	F	P
(a) Sample as a whole					
Chronic conditions	0.21	0.24	0.15	37.39	0.000
Perceived health	0.38	0.21	0.04	27.26	0.000
Medical scepticism	-0.45	-0.13	0.02	14.96	0.000
Functional disability	0.59	0.11	0.01	8.98	0.003
Preventive health behaviours	0.50	0.10	0.01	8.92	0.003
Widowhood	0.28	0.08	0.01	4.92	0.027
$F = 33.60$ ; d.f. = 6, 659; $P = 0.000$ ; $r^2 = 0.23$					
(b) Subsample with functional disability					
Chronic conditions	0.27	0.29	0.12	18.14	0.000
Perceived health	0.40	0.20	0.03	9.03	0.003
$F = 20.54$ ; d.f. = 2, 212; $P = 0.000$ ; $r^2 = 0.16$					
(c) Subsample without functional disability					
Chronic conditions	0.20	0.22	0.08	22.57	0.000
Perceived health	0.41	0.21	0.03	19.83	0.000
Medical scepticism	-0.49	-0.17	0.03	14.20	0.000
Preventive health behaviours	0.47	0.11	0.01	6.55	0.011
Widowhood	0.31	0.09	0.01	4.05	0.045
$F = 16.96$ ; d.f. = 5, 445; $P = 0.000$ ; $r^2 = 0.16$					

Separate analyses for those with and without disability suggest that the main predictors of formal health-service utilisation are similar. However, while among those with disability, use is accounted for solely in terms of objective and perceived health, use by those without disability is also associated with medical scepticism, the perceived importance of health behaviour and widowhood. Thus, where need is greater, use of services is associated with the actual and perceived importance of health-care behaviour. However, where need is less apparent, other factors also emerge as important; increasing or decreasing the likelihood of use.

A comparison of the correlates of each type of care points to the primary role of health concerns for generating health care of all types. More chronic conditions as well as poorer perceptions of health status are associated with an increased likelihood of both self- and formal care while level of disability is associated with increased formal and informal assistance. Health beliefs also emerge as significant, however. The importance attributed to preventive health behaviours emerges as a significant and positive correlate of both self-care and formal care. Medical scepticism is also important, increasing reliance on self-care while decreasing formal care. Each of these factors assumes less relevance in relation to informal care.



It is education and marital status, which in addition to disability levels, emerge as significant correlates of the receipt of informal care. Given similar levels of disability, married respondents and those with lower levels of education receive greater assistance from the informal network. Widowed respondents, in turn, report more extensive use of formal health services.

Finally, gender emerges as a significant and positive correlate of self-care but not of informal or of formal care. Contrary to previously reported findings, these findings indicate women are no more likely than men to make extensive use of such services. Their greater concern over health matters is reflected in more extensive use of self-care health practices.

### Conclusions

This paper has examined three types of care among the elderly: (1) self-care considered in terms of commonly encountered symptoms of illness; (2) informal care with respect to functional disabilities; and (3) formal care assessed in terms of the utilisation of formal health-care services.

In terms of self- and formal care, the findings reveal little evidence to support claims regarding a wholesale substitution of one by the other. In general, greater use of one is associated with greater use of the other, apparently as a result of their joint association with health factors. The finding that similar factors emerge as correlates of both further suggests that, rather than being mutually exclusive or competing options for care, self-care and formal care are, to a large extent, used similarly and therefore can best be viewed as supplementary forms of health care.

Substitution is suggested in relation to medical scepticism, particularly for those in better health. Evidence which indicates that net of other factors, those who tend to be more sceptical of organised medical care not only engage in more extensive self-care but also, less extensive formal care, suggests that for these individuals, self-care may in fact be used to substitute for formal care, at least in part.

Informal care, as examined here, appears to bear little relation to either self-care or formal care. Rather, the findings suggest it co-exists as a unique and therefore complementary form of health care. This is not wholly unexpected. Given the medical emphasis of the formal health care system, many of the tasks of long-term care would not be expected to overlap extensively with the formal system.

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