Perceived health and geriatric risk stratification

Observations from family practice

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ABSTRACT

OBJECTIVE To examine the association between perceived health and self-reported presence of certain geriatric conditions. Perceived health (the way people rate their own health) is a summary measure of health status that predicts functional decline, health care use, and mortality, but has not been examined as a measure of the prevalence of key geriatric conditions among older adults.

DESIGN Cross-sectional surveys addressing perceived health and other study variables were mailed to practice patients.

SETTING An urban university-based family medicine residency program.

PARTICIPANTS In a random sample of 400 patients (from 1327 potential participants) older than 65 years (excluding those with known dementia), more than half (262) responded with usable surveys.

MAIN OUTCOME MEASURES Self-reported geriatric syndromes, such as perceived memory loss, depression, falls, incontinence, weight loss, problems with walking, and difficulties with instrumental activities of daily living.

RESULTS Of 262 respondents, 102 reported that they perceived their health as poor or fair and were much more likely than people who perceived their health as robust (good, very good, or excellent) to report memory impairment (49.6% vs 23.1%), depression (38.0% vs 13.5%), falls (26.5% vs 12.5%), incontinence (48.5% vs 34.6%), weight loss (33.3% vs 15.4%), needing help with walking (27.3% vs 13.1%), and difficulties with activities of daily living (57.6% vs 24.4%).

CONCLUSION These results support the hypothesis that assessment of perceived health can help differentiate low-risk elderly people requiring usual surveillance for geriatric conditions from high-risk elderly people who require timely evaluation and management.

EDITOR'S KEY POINTS

- Perceived health, the way a person rates his or her own health, is a summary measure of health status that predicts functional decline, health care use, and mortality, but has not been examined as a measure of the prevalence of geriatric conditions in older adults.
- This pilot study examined the association between perceived health and self-reported presence of key geriatric conditions, testing the hypothesis that those reporting impaired health were more likely to report geriatric conditions than those reporting robust health.
- People with perceived impaired health, as opposed to perceived robust health, were significantly more likely to report memory impairment, depression, falls, incontinence, weight loss, needing help with walking, and difficulties with activities of daily living.

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Family medicine, which emphasizes access, continuity, coordination, and long-term personal relationships, has much to offer in the care of older adults. The high volume of patients seen in most family practices, however, often necessitates brief encounters in which multiple acute issues must be addressed. Less urgent concerns, such as screening for geriatric syndromes, might not be addressed, even though timely detection of these syndromes can preserve older adults' independence and quality of life. Casefinding tools, such as the "10-minute geriatric screener,"[1] can improve detection but can have poor yield when there is a low prevalence of target disorders. Screening can be made more effective, however, by identifying subgroups of patients with a higher prevalence of certain geriatric syndromes.

Risk stratification through assessment of perceived health holds promise in this area. Perceived health is a person's own evaluation of his or her health status measured through the response to a single question. The question asks people to rate their overall health as poor, fair, good, very good, or excellent. Perceived health is a summary indicator of variation in health and functional status based on a complex set of factors, including past health events and behaviour, family history of illness, current energy levels, optimism, and physical activity.[2] Poor self-rated health is an independent predictor of functional decline, greater use of health care services, and mortality.

The relationship with mortality is robust, persisting across race and sex and after controlling for socioeconomic status and comorbidity. Possible mechanisms include knowledge of past and current health experiences, implicit comparisons with people of similar age and health status, and the effect of perceived health on personal health behaviour, which, in turn, influences health outcomes.[3] Perceived health has been shown to be a better predictor of mortality than medical history.[4] Perceived poor health is also an overarching reflection of negative life events, stress, social isolation, and psychological distress.[5] Not surprisingly, perceived poor health has as strong an association with clinical depression[6] and with greater use of health care services.[7]

While useful as an epidemiologic health status indicator and as an end point in clinical trials,[8] the clinical significance of self-rating of health for individual patients is less clear. One study conducted in a family practice setting describes associations between perceived poor health, anxiety, and depression in young women.[9] Another recent investigation found that perceived impaired health predicted difficulties with instrumental activities of daily living and illness burden during 1-year follow-up of older adults.[10] This study urged clinicians to be vigilant for functional decline in people reporting poor health and called for additional research on the predictive utility of perception of health.

This pilot study examines the association between perceived health and self-reported presence of key geriatric conditions, testing the hypothesis that people reporting poor health are more likely to report geriatric conditions than those reporting robust health. The conditions—cognitive impairment, depression, falls, incontinence, weight loss, and impaired function (problems with walking and difficulties with instrumental activities of daily living)[11]—were selected on the basis of prevalence, severity, and the existence of guidelines and protocols for managing them in primary care.

METHODS

The site of this study was an urban university-based family medicine residency program. Data were derived from a quality-improvement project conducted in 2000 aimed at helping physicians become more aware of the needs and concerns of their older patients. In this project, surveys were mailed to a random sample of 400 out of the 1327 practice patients older than 65 years who had no known dementia. The number of people surveyed was determined by the funding available for office supplies and postage. Surveys asked patients to reply (yes or no) to questions regarding illness, health status, and preventive care. Surveys were placed in patients' medical records; results were entered without patient identifiers into a database. This research received approval from the Institutional Review Board.

Survey responses considered in this study related to perceived health and self-reported geriatric syndromes. Perceived health was measured with a single question: "In general, how would you rate your health?" Responses to this question were poor, fair, good, very good, or excellent. "Poor" or "fair" responses were categorized as "perceived impaired health" (n=102), and "good," "very good," or "excellent" responses were categorized as "perceived robust health" (n=160). Presence of self-reported geriatric syndromes was assessed through no or yes responses to single questions.

During data analysis, impaired and robust health groups were compared. Chi-square tests of homogeneity were used to evaluate the statistical significance of differences between groups with respect to categorical variables (sex, self-reported memory disturbances, depression, falls, incontinence, weight loss, problems

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with walking, and presence of one or more deficits in instrumental activities of daily living).

RESULTS

A total of 282 people returned surveys anonymously for a response rate of 70.5% (65.5% usable). Of the 262 respondents with usable surveys, 160 reported perceived robust health and 102 reported perceived impaired health. Mean age was 72.8 years; the impaired group was slightly older (73.7 years) than the robust group (72.0 years). There were 163 women (63.2%) and 99 men (37.7%). In all, 70% of the impaired group were female, compared with 58.5% of the robust group ($P < .05$). Self-reported geriatric syndromes are summarized in **Table 1**. People reporting impaired as opposed to robust health were significantly more likely to report memory impairment (49.6% vs 23.1%), depression (38.0% vs 13.5%), falls (26.5% vs 12.5%), incontinence (48.5% vs 34.6%), weight loss (33.3% vs 15.4%), needing help with walking (27.3% vs 13.1%), and difficulties with instrumental activities of daily living (57.6% vs 24.4%).

Table 1. Differences in self-reported geriatric syndromes based on perceived health: *Differences were calculated using the chi-square test.*

SYNDROME	REPORTED ROBUST HEALTH N = 160* N (%)	REPORTED IMPAIRED HEALTH N = 102 N (%)	*P* VALUE
Memory loss			<.001
• Yes	36 (23.1)	46 (49.6)	
• No	120 (76.9)	53 (50.4)	
Depression			<.001
• Yes	21 (13.5)	38 (38.0)	
• No	135 (86.5)	62 (62.0)	
Falls			<.004
• Yes	20 (12.5)	26 (26.5)	
• No	140 (86.5)	72 (73.5)	
Incontinence			<.028
• Yes	54 (34.6)	48 (48.5)	
• No	102 (65.4)	51 (51.5)	
Weight loss			<.001
• Yes	24 (15.4)	34 (33.3)	
• No	132 (74.6)	68 (66.7)	
Problems walking			<.004
• Yes	21 (13.1)	27 (27.3)	
• No	139 (86.9)	72 (72.7)	
Difficulty with instrumental activities of daily living			<.001
• Yes	39 (24.4)	57 (57.6)	
• No	121 (75.6)	42 (42.4)	

*For dementia and weight loss responses, N = 156.

DISCUSSION

These findings, suggesting strong associations between perceived impaired health and self-reported age-related disorders, have several clinical implications. People reporting impaired health were 2.8 times more likely to confirm they had depressive symptoms than people reporting robust health, 2.4 times more likely to report difficulties with instrumental activities of daily living, and approximately twice as likely to report memory impairment, falls, weight loss, and problems getting around. They were, however, only 1.4 times more likely to report incontinence. The lower magnitude of this association perhaps reflects the ubiquity of incontinence in healthy as well as frail elderly patients.

The relationship with depression is particularly important for family physicians because clinically significant depressive disorders affect up to 37% of elderly primary care patients. Such disorders are underdiagnosed yet treatable conditions[12] that erode quality of life and accentuate functional impairment. The association between perceived impaired health and difficulties with instrumental activities of daily living is also noteworthy because difficulties with these activities predict incipient frailty among elderly people in apparent good health before irreversible functional decline has occurred.[13]

Perceptions of health appear to differentiate low-risk elderly patients requiring usual surveillance for geriatric conditions from high-risk patients who should receive more detailed evaluation. This conclusion is tentative given the several limitations of this initial study. Geriatric syndromes were evaluated using single-item yes-no inquiries rather than validated measures or clinical assessment. Patients' self-reports have been shown, however, to be reliable indicators of actual health status and functional capability,[14] suggesting that self-reported geriatric syndromes might indeed be present. Self-reports of cognitive dysfunction are less reliable.[15] Elderly patients with literacy problems, sensory impairment, lower educational status, and poorer health might have been less likely to respond to this written survey. The cross-sectional design raises the possibility that perceived impaired health is a consequence of known conditions rather than a predictor of previously unrecognized geriatric syndromes.

Nonetheless, perceived impaired health, even if it is a consequence of existing syndromes, can still identify important geriatric problems. This is important, given the frequency with which such problems are overlooked in usual care.[16] Such conditions as depression, incontinence, early cognitive decline, and falls can be obscured by subtle presentation, underreporting by patients

through denial or fear, confounding symptoms of other disorders, and medication side effects. Future research should define the validity of perceived impaired health by examining the relationship between patients' ratings of their own health and clinically assessed geriatric syndromes. Such research should also consider the temporal relationship between ratings of perceived health and identification of geriatric syndromes.

Longitudinal studies of aging suggest that perception of declining health might predate and predict onset of geriatric syndromes. The Longitudinal Study of Aging,[17] which examined healthy older adults, showed that ratings of perceived impaired health (not based on known disease or disability) predicted subsequent 2-year mortality. A similar trend was shown in the MacArthur Field Study of Successful Aging.[18] These findings suggest that perceived health is more than a person's summation of known illnesses and disabilities and could instead be shaped by prodromes that have yet to be fully expressed clinically. It is possible that negative health perceptions have neuroimmunologic and behavioural consequences that increase susceptibility to disease, with depression as a mediator of these processes.[19] Potential mechanisms are suggested by research into subclinical chronic inflammation manifested as elevation of C-reactive protein, interleukin-6, or tumour necrosis factor. Elevation of these mediators is thought to occur early in the course of depression, weight loss, and incipient frailty in seniors and might affect self-rating of health in advance of clinical disorders.[20,21] Investigation of serologic and immunologic correlates of perceived health and the timing of changes in relation to the emergence of geriatric syndromes is another direction for continuing study.

Understanding how patients rate their health offers a third avenue for subsequent research. Perceived health assessment, despite its simplicity, appears to offer new information because family physicians have been shown to be inaccurate judges of how patients rate their health and to be unable to identify those with impaired health without asking.[22] Kivinen et al[22] examined differences in patient-reported versus physician-estimated health among 470 men aged 70 to 89 years. Only 36% of patient and physician ratings agreed; physicians tended to rate perceived health more favourably than patients did. Other patient-physician comparisons[23] found agreement rates around 50%. Another study indicated that physicians are often unaware of their patients' life circumstances.[24] In this study, only one third of adults older than 65 considered their doctors' knowledge of their health concerns and values to be very good or excellent. Along similar lines, there was a mismatch between patients who rated their health as poor or fair and physicians whose ratings of these patients' health were consistently higher. These patients were also significantly more likely to report clinically significant psychosocial morbidity that was unrecognized by physicians ($P < .05$).[6]

Kivinen et al[22] attributed inaccurate physician estimates to differing perceptions between physicians and patients of the effects of age on health. Differences might also reflect the effects of other potential determinants of perceived health (social comparisons, living arrangements, social support, optimism)[2] that lie outside usual clinical inquiry. Future research using a prospective design might address determinants of patients' perceived health ratings and how these differ from determinants of physicians' estimates. This could inform educational interventions to improve doctor-patient communication.

CONCLUSION

Results of this study suggest that perceived health, a single-item health status measure that is easily assessed, can help identify a subgroup of family practice patients with a high prevalence of key geriatric syndromes amenable to primary care intervention. This economy of measurement makes perceived health assessment suitable in busy family practices as a brief screen for unrecognized problems. Assessing perceived health this way deserves exploration as a practical strategy for improving the predictive value of more detailed screening and assessment procedures. Patients, family physicians, and other generalists stand to benefit from this line of inquiry; it might lead to a low-cost method of geriatric risk stratification that will allow finite resources to be directed to patients in greatest need.

Further research, considering temporal relationships between perceived health ratings and clinically verified geriatric syndromes, is needed, along with studies of potential mechanisms for these associations. Studies of how patients formulate ratings of their health and how these ratings differ from physicians' ratings can improve doctor-patient communication, satisfaction with care, and compliance with treatment and follow-up, and might help improve seniors' health.[25]

Contributors

Dr Bluestein *formulated the research question, did the literature review, and contributed to discussion of results.* **Dr Rutledge** *prepared the methods section, carried out statistical analyses, and contributed to discussion of results.*

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