

表 2 精神科訪問看護と一般訪問看護利用者の比較 (文献25)

介護者	精神科 訪問看護利用者 (n=39)	一般 訪問看護利用者 (n=37)	p-値
男 性	10(25.6)	9(24.3)	n. s.
年齢(歳)	52.8±26.9	64.5±12.4	<0.05
高齢者(65歳以上)	16(41.0)	18(48.6)	n. s.
持病あり	21(53.8)	21(56.8)	n. s.
訪問看護利用者との関係			
配偶者	11(28.2)	21(56.8)	<0.05
実子/義理の子	5(12.8)	13(35.1)	<0.01
親	17(43.6)	3(8.1)	<0.01
J-ZBI	21.8±13.9	32.3±19.7	<0.01
CES-D	12.0±7.3	15.2±8.6	n. s.
うつ状態 (CES-D=16以上)	12(30.8)	19(51.4)	n. s.
訪問看護サービス利用者			
男 性	12(30.7)	19(51.4)	n. s.
年齢(歳)	50.1±17.2	69.4±23.5	<0.01
Barthel index	91.9±16.8	49.6±40.1	<0.01
要介護度 4/5	1(2.6)	10(27.0)	<0.05
認知症	4(10.3)	9(24.3)	n. s.
統合失調症	23(59.0)	0(0)	<0.01
介護状況			
身体介護時間(時間/日)	0.8±1.5	6.5±7.7	<0.01
見守り時間(時間/日)	4.4±5.0	9.8±9.7	<0.05
介護期間(ヵ月)	97.5±87.2	57.7±80.4	n. s.
副介護者あり	10(25.6)	19(51.4)	n. s.
一人で外出できる	28(71.8)	24(64.9)	n. s.
訪問看護を利用	39(100)	37(100)	n. s.
ホームヘルパーを利用	12(30.7)	12(32.4)	n. s.
デイケアを利用	25(64.1)	15(40.5)	<0.05
ショートステイを利用	1(2.6)	8(21.6)	<0.05

データは平均±標準偏差または人数(%)

めに、介護負担の軽減ができていないと考えられる。

また、慢性閉塞性肺疾患患者の介護者の調査²¹⁾では高負担の介護者は低負担の介護者と比べ、経済的負担が高い者が多く、多くのサービスの利用を希望しているにもかかわらず、実際のサービスの利用に差は認めなかった²¹⁾。経済的負担のためにサービスの利用を控えている可能性も否定できない。

介護負担の軽減のためには、公的サービスの利用に対する偏見をなくすとともに、インフォーマルなサービスを活用するなど、介護者の経済的負担にも配慮したサポートが必要であろう。

Ⅲ. 介護負担の社会的インパクト

我々が福岡県の複数の地域で行った要介護高

齢者とその介護者の調査では、各地域により、高い介護負担との関連要因は微妙に異なっていたが、その一因としては各地域や時代の社会サービスの整備状況、利用可能なインフォーマルサービスの違い、要介護高齢者や介護者の違いが考えられる²²⁾。しかし、いずれの調査でも介護者の約半数(46.6%~56.1%)が抑うつ状態(CES-Dの得点16点以上)であり、一般住民のうつ病の割合(1~5%)と比べてきわめて高く、介護者の負担を軽減するための対策が必要と考えられた²²⁾。

福岡県M町で訪問看護サービスを利用する要介護高齢者の家族介護者の調査の場合²³⁾、介護者の約半数が抑うつ状態にあり、抑うつの割合は介護保険の導入後5年を経過してもあまり改善されていない²³⁾。

介護者の抑うつは介護の中断の危険因子であ

る²⁴⁾。介護者への支援も要介護高齢者の入院・入所を予防する介護予防である。介護放棄などの虐待を防ぐ意味からも、保健師などの市町村の保健福祉関係者は在宅で介護を継続している高齢者の家庭を訪問するなど、積極的に家族とかかわっていく必要がある。

Ⅳ. 精神科訪問看護と一般訪問 看護利用者の比較 (表2)

精神科病院の訪問看護を受けている患者の介護者の場合、家族の負担は一般の訪問介護サービスを受けている要介護高齢者よりも J-ZBI の点数は低かった²⁵⁾。精神科病院の訪問看護を受けている患者は一般の訪問看護サービス利用者よりも若く、日常生活動作の自立度が高く、認知症の割合が少なかった (統合失調症が59%)。また、介護者の年齢も精神科訪問看護の利用者のほうが若かった。介護状況をみると、身体介護や見守りの時間が少なく、デイケア利用者の割合が高く、ショートステイ利用者の割合が少なかった。デイケアを利用することで、介護から解放される時間が多く取れることが、精神科訪問看護利用者の介護者の負担が少ないことの一因と考えられた。

お わ り に

家族は共に生きていくために相互に働きかけ、お互いのセルフケアを補う機能を持っている²⁶⁾。これが、家族のセルフケア機能である。在宅医療の現場では家族は患者のセルフケア不足を補うケア提供者であると同時に、看護職からのケアの受け手でもある²⁷⁾。看護職には個人と家族のセルフケア機能を最大限に発揮するように支援することが求められている²⁶⁾。

在宅医療の大きな特徴は主治医のほか、訪問看護師、薬剤師、理学療法士、介護福祉士などのチームアプローチである²⁷⁾。在宅医療は看護やケアの領域の部分が非常に多く、訪問看護 (看護・医療処置・リハビリテーションを含む) との連携は不可欠であり、在宅医療における訪問看護師の役割は決して小さなものではない。

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認知症学 上

—その解明と治療の最新知見—

III. 臨床編

認知症診療に用いられる評価法と認知機能検査 各論

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The Japanese version of the Zarit Caregiver Burden Interview

荒井由美子

Key words : 在宅介護, 介護保険制度, 居宅介護サービス, 介護者, 認知症介護

はじめに

我が国における要介護高齢者(要介護認定を受けた者)は400万人を超え, 今後も増加の一途を辿るものと予測されている¹⁾。現在, 我が国では要介護者の約8割が在宅で介護を受けているが, 厚生労働省は更なる在宅サービスの推進を図っており²⁾, 家族介護者数は今後も増加していくものと考えられる。その一方で, 高齢者のいる世帯の半数近くが独居ならびに高齢者夫婦のみの世帯となっており, 高齢者による高齢者の介護が約半数となっている³⁾。

これまでの研究により, 家族介護者にとって介護が負担であると, 介護者自身の身体的・精神的な健康を損ね, 抑うつ, 慢性的なストレスによる免疫機能の低下などの状態をきたす可能性があることが明らかになっている⁴⁾。更に, 身体的・精神的な健康状態の悪化は, 要介護者に対する介護の質の低下や要介護者の施設入所率の増加⁵⁾, あるいは要介護者への虐待などの要因にもなりうる⁶⁾。したがって, 在宅介護を円滑に継続するために, 介護負担の程度を客観的に把握し, その軽減策を講ずることは, 極めて重要である。

本稿では, 我が国における介護負担研究において, 最も頻用されている Zarit 介護負担尺度

日本語版(J-ZBI), およびJ-ZBIの短縮版(J-ZBI_8)を紹介した上で, 介護負担研究全般について概説する。

1. 介護負担の定量的な評価: ZBI および J-ZBI

介護負担という概念を定量的に評価する指標を最初に開発したのは米国の Zarit である。彼は, ‘親族を介護した結果, 介護者が情緒的, 身体的健康, 社会生活および経済状態に関して被った被害の程度を測定できる尺度’である Zarit 介護負担尺度(Zarit Caregiver Burden Interview: ZBI)を作成した¹⁰⁾。ZBIは, 介護によってもたらされる身体的負担, 心理的負担, 経済的困難などを総括し, 介護負担として測定することが可能な尺度である。本尺度は, 当初, 29項目から構成されていたが, 22項目に改訂された¹¹⁾。この22項目からなるZBIは, 欧米で最も頻用されている介護負担尺度の一つであり, 各国の言語に翻訳され, 活用されている。

この尺度は, 22項目の様々な場面における介護の負担についての質問から構成され, それぞれの質問項目に対しては, 5段階の評価がなされる。1-21の各質問は, 様々な場面における介護の負担についての質問から構成されている。また, 全22項目のうち, 最終項目である項

III

臨床編

目 22 は、'介護の負担が全体としてどのくらいあるのか'を示す指標であると定義されており¹⁴⁾、全体として介護がどのくらい大変であるかを 5 段階の選択肢から、回答者に選択させるものである。なお、本尺度は、面接調査で用いることができるだけでなく、自記式質問票の形式でも利用可能であるため、汎用性が高い。

著者らは、国際的に比較が可能な介護負担尺度の日本語版を作成することが有用であると考え、Zarit 教授の許可を得て、Zarit 介護負担尺度日本語版 (J-ZBI) を作成し、信頼性と妥当性を確認した¹⁵⁾。表 1 に、全 22 項目の質問とその判定基準を示したが、原版と同じく満点は 88 点であり、介護負担が全くない場合は 0 点である。この介護負担尺度は、介護者の負担を客観的に把握する目的で、我が国の多くの研究機関・現場などで用いられている。

Schreiner と著者らは、家族介護者に抑うつ症状がみられるか否かについて、J-ZBI 得点の 24 点をカットオフポイントと設定した¹⁶⁾。

2. Zarit 介護負担尺度日本語版の短縮版 (J-ZBI_8)

a. J-ZBI_8 および 2 つの下位尺度についての信頼性・妥当性の確認

著者らは、実際の介護の現場で、より簡便に介護負担を測定できるよう J-ZBI 短縮版 (J-ZBI_8) を作成した。短縮版作成にあたっては、在宅介護者に対し介護負担 (J-ZBI) に関する調査を行い、項目 22 を除いた 21 項目に対し因子分析を行い、短縮版の項目の選定を行った。その結果、Personal strain (介護を必要とする状況 (または事態) に対する否定的な感情の程度)、Role strain (介護によって (介護者の) 社会生活に支障をきたしている程度)、それぞれ 5 項目、3 項目からなる、J-ZBI_8 が作成された。表 1 の◎を付した 5 項目が Personal strain に該当する項目であり、△を付した 3 項目が Role strain に該当する項目である。J-ZBI_8、下位尺度 Personal strain、Role strain それぞれにおいて、信頼性・妥当性が確認された^{14,15)}。したがって、J-ZBI の短縮版である J-ZBI_8 の信頼性・妥当

性は原版と同様高いものであり、十分に実用に耐えうるものと確認された^{14,15)}。

b. J-ZBI_8 の交差妥当性の確認

更に、著者らは、別地域において介護負担調査を行い、J-ZBI_8 の交差妥当性を確認し、J-ZBI_8 が全国どの地域でも用いることができることが明らかになった¹⁶⁾。

J-ZBI_8 は、わずか 8 項目の簡便な尺度であるが、因子構造が明確な 2 つの下位尺度を持ち、J-ZBI と極めて高い相関が認められた。本尺度により、簡便に在宅介護者の介護負担を把握することが可能となる。このように J-ZBI_8 は、在宅介護、臨床の現場、諸調査において、介護負担を客観的に測定する上で極めて有用な尺度であり、幅広い利用が望まれる。

3. 介護負担に関してこれまでに行われた研究

介護負担に関してこれまでに行われた研究から得られた知見を以下に記す。

a. 要介護者側の要因と介護負担との関連

要介護者の日常生活動作能力 (Activities of Daily Living: ADL) の自立の程度と、介護負担との関連については、有意な関連を認めるか否か、一致した見解はみられていない。また、要介護者の認知症の重症度、認知機能と介護負担についても、関連を認めないとする報告が多いが、必ずしも一致した結果は得られていない。更に、著者らの研究では、認知症の重症度が同じ場合、アルツハイマー型認知症と脳血管性認知症患者を介護する者の介護負担の程度には違いがみられないことが明らかになった¹⁷⁾。

これに対し、認知症の行動・心理症状 (Behavioral and Psychological Symptoms of Dementia: BPSD、以下 BPSD と略す) については、ほぼすべての先行研究において、介護負担との関連が強く認められており、著者らも同様の知見を得ている¹⁸⁾。

また、前頭側頭葉型認知症 (FTLD) 患者は、人格変化や脱抑制などの行動変化を伴うことが多いため、こうした患者の家族介護者は、介護をしていく上で、特異的な問題を抱えているこ

表1 Zarit介護負担尺度日本語版(J-ZBI)および短縮版(J-ZBI_8)(荒井らによる訳)^{12,14-16)}

各質問について、あなたの気持ちに最も当てはまると思う番号を ○で囲んで下さい		思 わ な い	た ま に 思 う	時 々 思 う	よ く 思 う	い つ も 思 う					
1	介護を受けている方は、必要以上に世話を求めてくると思いますか	-	0	-	1	-	2	-	3	-	4
2	介護のために自分の時間が十分にとれないと思いますか	-	0	-	1	-	2	-	3	-	4
3	介護のほかに、家事や仕事などもこなしていかなければならず「ストレスだな」と思うことがありますか	-	0	-	1	-	2	-	3	-	4
◎ 4	介護を受けている方の行動に対し、困ってしまうと思うことがありますか	-	0	-	1	-	2	-	3	-	4
◎ 5	介護を受けている方のそばにいと腹が立つことがありますか	-	0	-	1	-	2	-	3	-	4
△ 6	介護があるので、家族や友人と付き合いづらくなっていると思いますか	-	0	-	1	-	2	-	3	-	4
7	介護を受けている方が将来どうなるのか不安になることがありますか	-	0	-	1	-	2	-	3	-	4
8	介護を受けている方は、あなたに頼っていると思いますか	-	0	-	1	-	2	-	3	-	4
◎ 9	介護を受けている方のそばにいと、気が休まらないと思いますか	-	0	-	1	-	2	-	3	-	4
10	介護のために、体調を崩したとったことがありますか	-	0	-	1	-	2	-	3	-	4
11	介護があるので、自分のプライバシーを保つことができないと思いますか	-	0	-	1	-	2	-	3	-	4
△ 12	介護があるので、自分の社会参加の機会が減ったと思うことがありますか	-	0	-	1	-	2	-	3	-	4
△ 13	介護を受けている方が家にいるので、友達を自宅によびたくてもよべないと思ったことがありますか	-	0	-	1	-	2	-	3	-	4
14	介護を受けている方は「あなただけが頼り」というふうにみえますか	-	0	-	1	-	2	-	3	-	4
15	いまの暮らしを考えれば、介護にかかる金銭的な余裕がないと思うことがありますか	-	0	-	1	-	2	-	3	-	4
16	介護にこれ以上の時間は割けないと思うことがありますか	-	0	-	1	-	2	-	3	-	4
17	介護が始まって以来、自分の思いどおりの生活ができなくなったと思うことがありますか	-	0	-	1	-	2	-	3	-	4
◎ 18	介護をだれかに任せてしまいたいと思うことがありますか	-	0	-	1	-	2	-	3	-	4
◎ 19	介護を受けている方に対して、どうしていいかわからないと思うことがありますか	-	0	-	1	-	2	-	3	-	4
20	自分は今以上にもっと頑張って介護するべきだと思うことがありますか	-	0	-	1	-	2	-	3	-	4
21	本当は自分をもっとうまく介護できるのになあと思うことがありますか	-	0	-	1	-	2	-	3	-	4
			全 く 負 担 で は な い	多 少 負 担 に 思 う	世 間 並 み の 負 担 だ と 思 う	か な り 負 担 だ と 思 う	非 常 に 大 き な 負 担 で あ る				
22	全体を通してみると、介護をするということは、どれくらい自分の負担になっていると思いますか	-	0	-	1	-	2	-	3	-	4

◎: J-ZBI_8 Personal strain, △: J-ZBI_8 Role strain.

とが明らかになっている¹⁹⁾。

b. 介護者側の要因と介護負担との関連

一方、介護者の性、年齢、続柄と介護負担との関連については一致した見解はみられていない。また、これまでのところ、介護期間と介護負担との間に、明らかな関係は見出されていない。これに対し、介護量の指標として広く用いられている介護時間は、介護負担と有意に関連することが知られている。

ところで、実際の介護では、身体的な介護だけでなく、見守りに時間をとられることが多い。これを踏まえて、著者らは、介護者に対して、患者から目を離せる時間として、‘介護者が外出できる時間’を尋ねた結果、介護負担との間には有意な関連が認められた²⁰⁾。

c. 家族の介護負担に関する縦断研究

次に、介護負担の経時的変化に関してこれまでに行われた縦断研究(longitudinal studies)の知見を以下に記す。Haleyらによると、介護負担の経時的変化には、細分すると3つの型が考えられるという²¹⁾。第1は、介護をしていくうちに、要介護者(介護される側)の心身の状態が悪化するため、介護者の介護負担が高くなるとする説である(Wear-and-tear model)。第2は、介護者が介護に慣れていくため、介護負担は軽くなるとする説である(Adaptation model)。第3は、個人(介護者)に備わっているコーピングの能力は一定しているため、介護負担は常に変わらないとする説である(Trait model)。これまでに行われた研究では、上記3つのそれぞれの説を支持するような報告がなされている。

d. 介護保険制度と介護負担に関する研究

介護保険制度下における介護負担に関する縦断研究、および居宅介護サービス利用に関する知見を以下に示す。まず、介護保険制度導入前から要介護高齢者の介護を続けている者の介護負担が、制度導入前後において、どのように変化するかを検討すべく、某自治体において縦断研究を行ったところ、悪化してはいないことが示された²²⁾。次に、居宅介護サービス利用に関連して、サービスの利便性が良い場合、家族

介護者の負担は軽い傾向にあることが明らかになった²³⁾。更に、多変量解析の一種である構造方程式を用いて、要介護者の居宅介護サービス利用が多いほど、その家族の介護負担が軽くなることを示した²⁴⁾。これらは、介護保険制度下における居宅介護サービス利用が介護者の負担を軽減しうることを示すものである²⁵⁾。

おわりに

本稿では、我が国における介護負担研究において、最も頻用されているJ-ZBI、およびJ-ZBI_8を紹介した上で、介護負担研究全般について概説した。

稿を終えるにあたり、著者らが、厚生労働省研究班における成果の社会還元の一環として作成した‘認知症高齢者の自動車運転を考える家族介護者のための支援マニュアル⁶⁾’について紹介する。本マニュアルは、自動車運転を安全に継続することが困難となった認知症高齢者を介護する家族に対し、介護負担軽減を企図して作成された。本マニュアルの幅広い活用を図るため、著者の所属する国立長寿医療研究センター長寿政策科学研究部のウェブサイト[<http://www.ncgg.go.jp/department/dgp/index-dgp-j.htm>]から、pdfファイルの無償ダウンロードによる利用を可能とした。

現在、本マニュアルは、認知症サポート医養成研修、および、かかりつけ医認知症対応力向上研修のテキストに活用されている。また、本マニュアルの完成と閲覧方法について、(社)認知症の人と家族の会や、警察庁および警視庁など、地方自治体などにおいても周知されている。加えて複数の全国紙と43の地方紙などが紹介しており(各紙発行部数合計:約2,800万部)、更には、NHK総合テレビで紹介されるなど、本マニュアルによる国民への幅広い啓発が実施されている。

今後とも、本マニュアルの普及により、認知症高齢者の家族介護者の負担軽減に資することが期待される。

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Differences in perceptions regarding driving between young and old drivers and non-drivers in Japan

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Objective: The issue of driving cessation for dementia patients is one of the urgent public health priorities in Japan and is often complicated, with family or social barriers yet to be sufficiently addressed. Because the possibility of dementia or family caregiving can befall anyone, we focused on the disparity in people's perceptions of driving as possible barriers. The present study aimed to assess perceptions of driving among the general public and examine differences in perceptions based on age and driving status.

Methods: A survey was conducted in a sample of the general public aged 40 and over in Japan. Respondents were 1010 people who received a self-administered questionnaire that included questions regarding perceptions about driving and sociodemographic factors.

Results: The drivers that participated in this study tended to highly agree that 'driving is a "right" which we all deserve', compared with the non-drivers. The most common reason for reluctance to stop driving among drivers was the possible loss of personal mobility. Apart from transportation, older drivers were more likely than younger drivers to value the qualitative aspects of driving, for example, driving was viewed as 'a motivating factor in my life'.

Conclusions: These disparities in the general public's perceptions about driving may be possible family or social barriers to driving cessation in the case of drivers with dementia. Our findings also suggest that when addressing the need for driving retirement, not only mobility but also the qualitative aspects of driving be paid more attention. Copyright © 2010 John Wiley & Sons, Ltd.

Key words: older drivers; driving cessation; perception; general public; dementia

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Introduction

The number of older drivers has been increasing dramatically as Japan's population ages. People aged 65 and older account for 21% (27 million) of the total population in Japan. The number of licensed drivers over 65 ('older drivers') exceeded 11 million in 2007, accounting for 14% of the total drivers of all ages. The number of drivers in the older population is about 40% which is much lower than the 80% in the younger population under age 60 who drive. However, automobiles are nonetheless a practical form of

transportation for older people, and driving can play a key role in maintaining independence.

Given that advanced age is associated with a higher risk of chronic diseases as well as physical, sensory and cognitive impairments, older drivers are considered to be vulnerable to having motor vehicle crashes (Anstey *et al.*, 2005). Indeed, during 2008 in Japan, the traffic accident rate was estimated at 863 cases per 100 thousand older drivers, the third highest after 1685 cases in the 16–24 age group and 1036 cases in the 25–29 age group (Traffic accidents situation, National Police Agency (NPA), 2009). Moreover, the accident

rate among drivers under age 65 tended to decrease in the past decade, whereas that among older drivers remained at a high level.

Thus, the Japanese government has enforced a traffic safety campaign targeting older drivers and has paid special attention to older drivers suffering from dementia, who are considered a high-risk group. In 2002, Section 103 of the Road Traffic Act was amended. In the amended Act, dementia was included as a reason for license revocation, stating that if a driver is found to be 'demented', his/her driving license shall be revoked (Arai Y and Arai A, 2005; Arai Y, 2006). Such efforts can lead to raising the national profile of driving and dementia. However, there are several challenges related to implementation of the Act. It is not easy to identify drivers who suffer from dementia without guidelines and mandatory reports from physicians. In addition, without a clear consensus regarding the progressive decline of cognitive functions, it is difficult to decide when drivers should stop driving (Arai Y, 2006; Hirono, 2006). This has raised concern that many drivers may continue to drive after onset of dementia, as reported in previous studies (Odenheimer, 1993; Dobbs *et al.*, 2002; Adler and Kuskowski, 2003; Herrmann *et al.*, 2006).

The NPA reported that nationwide only 192 drivers had their driver's licenses revoked due to dementia over the last four years since the law was amended. Moreover, the most common reason for license revocation was 'concerns of family members' (133 cases), which was followed by 'police activity' (e.g., handling a traffic accident) (59 cases) ('Older drivers: introduction of cognitive assessments' (Japanese), *The Daily Police News*, 20 October 2006). Our previous study regarding family caregivers of current and former drivers who had dementia ($n = 21$) showed that a primary reason for driving cessation among former drivers was because 'family caregivers discovered the patient was driving dangerously' (48%), followed by 'patients and family caregivers were persuaded by physicians' (14%), 'traffic accidents' (14%), and 'other' (2%) (Arai A *et al.*, 2006). Cotrell and Wild (1999) demonstrated that either the patient or caregiver was responsible for decisions regarding driving status in most cases of those with Alzheimer's disease (AD) who stopped driving. Similarly, Perkinson *et al.* (2005) reported from focus-group interviews that most of the stakeholders with respect to driving by persons with AD believed that family members had primary responsibility for identifying and dealing with unsafe drivers. Thus, family members of dementia patients play a pivotal role in decision-making regarding patients' driving and in supporting the eventual goal of driving cessation.

However, the decision of driving cessation is often complicated for longtime drivers, and even more so for those with dementia and their family caregivers for a number of reasons: (1) rejection by drivers due to the symptoms of dementia such as memory impairment or unawareness of deficits; (2) rejection by drivers due to a strong need to drive, i.e., because it is a necessary form of transportation; and (3) conflicts between drivers and their family members due to different perceptions about driving such as opinions as to what driving means to the person who is driving. These reasons, including ones which are not necessarily related to dementia, can hinder driving cessation from occurring at the most appropriate time, jeopardizing personal and public safety.

Although much of the literature has focused on examining the medical and non-medical predictors of driving cessation in older adults with dementia (Wackerbarth and Johnson, 1999; Adler and Kuskowski, 2003; Carr *et al.*, 2005; Herrmann *et al.*, 2006), little is known about what kinds of difficulties exist between dementia patients and family members with respect to patients' driving cessation. As Carr *et al.* (2006) have suggested, research is needed regarding family or social barriers that may delay driving cessation in older adults with dementia.

The family or social barriers might be, in part, the result of disparities of perceptions regarding driving between dementia drivers and family members. Different perceptions about driving may cause family conflicts, posing possible barriers to achieving driving retirement at the most appropriate time. Furthermore, family caregiving can befall anyone; most individuals are susceptible to the possibility of suffering dementia or becoming family caregivers. It is thus important to explore perceptions among the general public, with the expectation that the findings would provide implications for drivers with dementia and their family caregivers. In addition, it can be useful information to allow the public to better understand and get involved in addressing issues of driving and dementia. We therefore aimed to explore the perceptions of driving in a sample of the general population and examine the differences of perceptions from age and driving status viewpoints.

Design and methods

In October 2007, we conducted a survey among the general public aged 40 and over in Japan. Participants were selected from a research panel organized by Social Survey Research Information (SSRI) Co., Ltd. The

panelists, who were recruited from the general population and were willing to participate in surveys, included 31 050 persons aged 40 or over. Each person eligible for this panel was competent in reading and answering a series of self-administered questionnaires distributed by the SSRI; therefore, the quality of this research panel was assured and responses were valid and reliable. All panelists lived independently in communities. If we found that more than one panelist resided in the same household, we limited participation to only one member from that household. Of the 1191 who agreed to participate in this study, 1010 were randomly selected to fit into predetermined categories by a quota sampling method (Moser and Kalton, 1989). This quota sampling method has been used in previous studies (Arai Y *et al.*, 2005; Arai Y *et al.*, 2008). The quota controls used in the present study were gender, age group, driving license status, and place of residence (urban: population \geq 500 000, suburban: 100 000 to $<$ 500 000 or rural: $<$ 100 000) based on Japan's national statistics. Although there were similar distributions of most of the socio-demographic characteristics compared with Japanese population statistics, there was a slightly higher proportion of study participants who lived in a household with two or more generations, had higher education, or were or used to be administrative workers.

Each subject received a self-administered questionnaire that requested information about sociodemographic factors (e.g., education, annual household income, employment status, and living arrangement), driving status (drivers: those who had a driver's license and frequently drove, and those who had a driver's license and rarely drove; non-drivers: those who did not have a driver's license), and perceptions related to driving.

Perceptions about driving

We asked all participants including drivers and non-drivers to identify how they perceived 'driving' using the following question based on a previous study by Perkinson *et al.* (2005): 'Do you think that driving is a "right" which we all deserve'? We also asked only the frequent drivers (i.e., those who had a driver's license and frequently drove) about possible barriers to driving cessation using the following question: 'Assuming you have to stop driving, what would be the reasons, if any, for your reluctance to do so?'

The former question was answered by a four-point Likert scale (agree, agree somewhat, disagree some-

what, disagree), while the latter was a multiple choice question in which participants chose all the answers that applied from 15 items created by the authors (a psychiatrist and public health specialist: YA and AA).

Statistical analyses

Multiple logistic regression models were used to compare the older group (65+ years) and younger group (40–64 years), and the drivers and non-drivers, on their perceptions of driving, adjusting for potential confounding factors such as age group/driving status, gender, place of residence, education, annual household income, living arrangement, and employment status. The associations between the probability of each reason for feeling reluctance to stop driving and the age group were evaluated by calculating the crude odds ratios (ORs) and the ORs adjusted for potential confounding factors, including gender, place of residence, education, annual household income, living arrangement, and employment status using the logistic regression models. All calculations were performed using SAS version 9.1.3 for Windows (SAS Institute Inc., Cary, NC).

Results

Table 1 shows the characteristics of the respondents ($n = 1010$) by age group and driving status. Most of the older drivers were men; further, the older age group had fewer years of education and lower annual household incomes than the younger age group. The younger drivers were more likely to be employed and lived in households with two or more generations present. The younger participants also tended to live in urban areas. Most of the drivers in both age groups frequently drove.

Regarding how the participants perceived 'driving', the largest number of older drivers agreed that 'driving is a "right" which we all deserve' (Table 2). Perceptions of driving did not significantly differ between the age groups. However, we found that the drivers tended to regard 'driving' as a deserved right compared with the non-drivers after controlling for potential confounders.

As shown in Table 3, 'It would be difficult for me to go out' (65.8% of the total) was the most common reason given for reluctance to stop driving among the frequent drivers, followed by 'It would be difficult for my family members to go out' (43.0%), 'Loss of something I enjoy' (29.2%), and 'A driver's license is

Table 1 Characteristics of participants by age group and driving status

	Older (65+ years)		Younger (40–64 years)	
	Drivers (n = 192)	Non-drivers (n = 259)	Drivers (n = 451)	Non-drivers (n = 109)
Men, n (%)	136 (70.8)	89 (34.5)	251 (55.7)	29 (26.6)
Age, mean (SD)	72.9 (5.3)	75.5 (6.1)	48.0 (6.5)	52.9 (8.0)
Education, n (%)				
<10 years	49 (25.5)	78 (30.4)	12 (2.7)	8 (7.4)
10–13 years	74 (39.2)	84 (32.1)	148 (32.9)	55 (50.9)
18+ years	66 (34.9)	45 (17.5)	290 (64.4)	45 (41.7)
Annual household income (thousands of yen), n (%)				
<4000	75 (42.4)	103 (43.9)	47 (11.0)	33 (31.7)
4000–8000	69 (39.0)	105 (43.9)	185 (43.4)	46 (42.2)
8000+	39 (21.5)	32 (13.5)	194 (45.5)	25 (24.0)
Employed, n (%)	53 (27.6)	25 (9.7)	455 (78.7)	54 (49.5)
Living arrangement, n (%)				
Alone	10 (5.4)	27 (11.1)	7 (1.6)	6 (5.7)
Couple	95 (50.8)	84 (34.4)	56 (12.8)	34 (32.4)
Two or more generations in household	82 (43.9)	83 (34.5)	374 (85.6)	65 (61.9)
Place of residence, n (%)				
Urban	58 (30.7)	84 (34.6)	249 (55.6)	51 (49.5)
Suburban	56 (29.6)	71 (29.2)	103 (23.0)	27 (26.2)
Rural	75 (39.7)	88 (36.2)	96 (21.4)	25 (24.3)
Frequently driving, n (%)	145 (75.5)	na	372 (82.5)	na

Missing data: six data points (a), 65 data points (b), 37 data points (c), and 27 data points (d).

useful as an ID card' (27.2%). The reason 'Loss of a motivating factor in my life' was significantly more common among the older drivers than among the younger drivers, even after adjusting for potential confounders. Moreover, compared with the younger drivers, the older drivers appeared to be concerned about 'Loss of something I enjoy' ($p = 0.05$) and 'Loss of a hobby' ($p = 0.08$) after driving cessation, although these reasons were not significant.

Discussion

The present study clearly demonstrated the disparities in perceptions about driving in a sample of the Japanese general public.

Perceptions about driving varied according to the respondent's driving status. Irrespective of age group, drivers tended to believe that driving was a deserved right, whereas non-drivers were less likely to think so. Further research is needed regarding why the difference in perceptions existed. These different perceptions are nonetheless thought to be a cause of possible conflicts among family members or stakeholders; those drivers who perceive driving as a right may firmly refuse to give up driving or even rigidly adhere to continuing to drive. These results also indicate that drivers and non-drivers may have a different understanding of 'driving'. Therefore, it is necessary for the general population, irrespective of driving status, to promote a more precise recognition of current driving license regula-

Table 2 Perceptions of driving among the general public

	Older (65+ years)		Younger (40–64 years)		p value ^a (adjusted for potential confounding variables)	
	Drivers (n = 192)	Non-drivers (n = 257) ^b	Drivers (n = 449) ^b	Non-drivers (n = 109)	Older vs. younger	Drivers vs. non-drivers
Driving is a 'right' which we all deserve					0.7462	0.0009
Agree/Agree somewhat, n (%)	147 (76.6)	146 (56.8)	311 (69.3)	72 (66.1)		
Disagree/somewhat/Disagree, n (%)	45 (23.4)	111 (43.2)	138 (30.7)	37 (33.9)		

^aOne missing data point for the older non-drivers and two missing data points for the younger non-drivers.

^bCalculated by multiple logistic regression model including age group/driving status, gender, place of residence, education, annual household income, living arrangement, and employment status.

Table 3 Possible reasons for reluctance to stop driving among frequent drivers (multiple answers)

Reason	Older drivers	Younger drivers	Older vs. younger drivers	
	(65+ years, n = 144) ^a	(40–64 years, n = 370) ^a	Crude OR	Adjusted OR ^b
	n (%)	n (%)		
I am not reluctant to stop driving	22 (15.3)	51 (13.8)	1.13	1.64
It would be difficult for me to go out	90 (62.5)	248 (67.0)	0.82	0.88
It would be difficult for my family members to go out	59 (41.0)	162 (43.8)	0.89	0.87
Loss of something I enjoy	56 (38.9)	94 (25.4)	1.87*	1.81
Loss of independent living	39 (27.1)	81 (21.9)	1.33	1.10
A driver's license is useful as an ID card	38 (26.4)	102 (27.6)	0.94	1.16
Loss of a motivating factor in my life	28 (19.4)	30 (8.1)	2.74*	4.93*
Loss of a way to relax	21 (14.6)	43 (11.6)	1.30	1.85
Loss of a hobby	20 (13.9)	32 (8.7)	1.70	2.44
Loss of a sense of self	20 (13.9)	43 (11.6)	1.23	0.91
I want to keep my driver's license	18 (12.5)	38 (10.3)	1.25	0.77
Loss of my dignity	15 (10.4)	29 (7.8)	1.37	1.31
Loss of something I commit to regularly	14 (9.7)	22 (6.0)	1.70	2.02
Loss of an opportunity to be alone	8 (5.6)	22 (6.0)	0.93	2.06
I don't know how to return my license	0 (0.0)	0 (0.0)	—	—

^aOne missing data point for the older drivers and two missing data points for the younger drivers.

^bOdds ratio (OR) was adjusted for gender, place of residence, education, annual household income, living arrangement, and employment status by multiple logistic regression model.

* $p < 0.05$.

tions to close the perception gap and for the sake of public safety.

Our study also showed that among the frequent drivers in both older and younger groups, most of the reasons for reluctance to stop driving were related to the possible loss of personal mobility (shown in Table 3). Our finding partly supports Freund's view (Freund and Szinovacz, 2002) in which decisions to stop driving were associated not only with competence but also with the availability of alternate transportation opportunities. In addition, a previous study regarding family caregivers of dementia patients by Mizuno *et al.* (2008) showed that family caregivers cited alternative transportation, and in particular the availability of family caregivers or other family members who could drive instead of the patient, as essential to facilitate the cessation of driving. It has also been reported that the availability of transportation services was a key factor in allowing older people to keep attending social activities and maintain autonomy (Roper and Mulley, 1996; Dickerson *et al.*, 2007; O'Neill, 2007). It is clear that alternate transportation is needed to facilitate the smooth transition to another form of transportation after driving retirement and prevent older people from experiencing restricted mobility. Although availability of a mass transit system varies between rural and urban areas in Japan, a bus or community bus (one that circles around the area) has been developed as a practical form of transportation to enhance the mobility of the residents and is expected to support

those who have stopped driving as well as their family members.

We found a significant difference between the older and younger age groups with respect to the reasons for reluctance to stop driving. The older drivers were more likely to value the qualitative aspects of driving, for example, driving as 'a motivating factor in my life', 'something I enjoy', and consider a 'hobby'. It appears that driving is regarded not only as a mode of transportation but also as a meaningful activity for older drivers. This might be related to the findings of another study in which 93% of drivers diagnosed with dementia ($n = 43$) thought that driving was important to their quality of life (Adler and Kuskowski, 2003). Both practical and qualitative aspects of driving can be important factors in maintaining independence among older people.

These noticeable reasons for reluctance to stop driving may be related to the negative consequences of driving cessation among older people or people with dementia cited in previous reports: increased depressive symptoms (Marottoli *et al.*, 1997; Fonda *et al.*, 2001; Ragland *et al.*, 2005), decreased out-of-home activity levels (Marottoli *et al.*, 2000), difficulties in accessing social and recreational services (Taylor and Tripodes, 2001), and increased risk for entry into a nursing home (Freeman *et al.*, 2006). We therefore suggest that more attention be devoted to not only the problem of decreased mobility but also alternatives to the qualitative aspects of driving. One possible

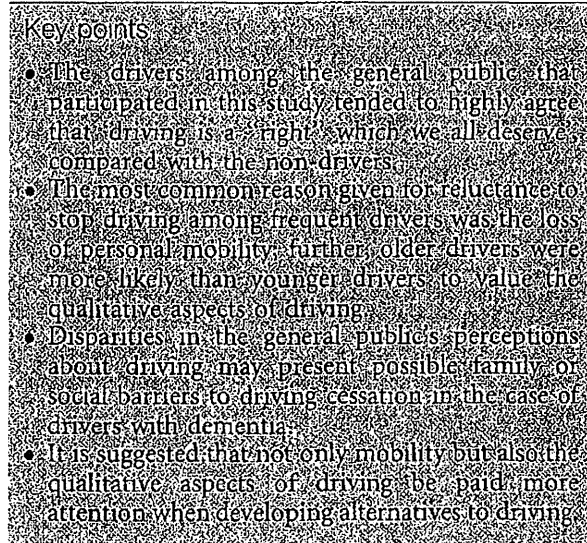
alternative would be to increase opportunities for participating in leisure, physical, and social activities and social services, which could help older people find something else to 'motivate them in their lives', 'enjoy', and have as a 'hobby' after driving retirement. Moreover, to seek appropriate alternatives for individuals, family members, and stakeholders should communicate with the older drivers early in the process of driving cessation to try to better understand what 'driving activity' means for them.

The limitations of this study should be noted. Although our study sample was selected from a research panel based on national statistics using a quota sampling method, a certain amount of selection bias was unavoidable. In addition, we categorized the respondents into two groups of driving status: drivers and non-drivers. However, we did not know if the non-drivers group included former drivers who had returned a driver's license and stopped driving. A self-administered questionnaire, as used in this study, can represent another information bias. Perceptions about driving were not sufficiently explored by the closed-ended format in the questionnaire; thus, the results should be carefully interpreted. We did not take into account in the analyses whether the licensed drivers had other drivers to provide transportation. Instead, we used living arrangement as a confounding factor related to the availability of alternate drivers that could be controlled in the analyses.

Despite these limitations, our findings provide useful insights into the possible family or social barriers to driving cessation in the case of drivers with dementia. As observed in the present study, the disparities in perceptions about driving may cause conflicts among stakeholders with respect to when dementia patients should have their licenses revoked. It is thus important to facilitate general public involvement in considering the public health issue of driving and dementia, closing the perception gap and developing strategies to better address the difficulties related to driving cessation as a whole society. Moreover, in addition to practicable transportation alternatives, the qualitative aspects of driving should also be paid more attention when preparing alternatives. In this way, the goal of more effectively meeting the needs of retiring drivers while also allowing them to maintain autonomy can be more easily achieved.

Conflict of interest

None known.



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Original Study

Priorities of Health Care Outcomes for the Elderly

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A B S T R A C T

Keyword:

Geriatrics
quality of care
health care policy

Objectives: Physicians are uncertain about what medical services should be provided to older and/or disabled patients. Better understanding of health outcome prioritization among health care providers and recipients may help the process of decision- and policy-making. For this purpose, surveys were conducted on priorities of health care outcomes for the elderly.

Design: Survey research.

Setting: Four groups of health care providers and four groups of health care recipients.

Participants: A total of 2512 health care providers and 4277 recipients.

Measurements: Questionnaires were sent to more than 8000 health care providers and more than 9000 health care recipients: geriatricians, physicians who commonly see older patients or work in long term care facilities, staff members and participants in adult day care, patients in outpatient geriatric clinics, family members of patients with dementia, and community-dwelling older adults. The questionnaire asked the subjects to rank 12 measures of health care outcomes.

Results: The mean response rate was 49%. All health care provider groups considered "improvement of quality of life" the most important. In contrast, in health care recipient groups, "effective treatment of illness," "improvement of physical function," and "reduction of carer burden" were given high priority, whereas "improvement of quality of life" was perceived as less important. All the groups, including health care providers and recipients, ranked "reduction of mortality" the least important, followed by "avoiding institutional care." Stratification analysis showed that the results did not differ by sex, nursing care level, or the existence of relatives who required nursing care, whereas age slightly influenced the order of high-ranked measures.

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Conclusion: Priorities of health care services and their differences between providers and recipients should be taken into account in the health care of older patients and the design of health care policies and research.
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Japanese society has been rapidly aging owing to long life expectancy and a low birth rate.¹ People older than 65 comprised 23.8% of the population in 2012, which is expected to rise to 31.8% in 2030² and will be by far the highest in the world. Japanese physicians have been exposed to a high load of older patients, and management of older patients remains a major challenge. There are several reasons for this difficulty. Evidence is still largely lacking for older patients, especially for those older than 75 years, who account for 11.8% of the Japanese population.^{2,3} Older patients are likely to have multimorbidities, or co-occurrence of two or more chronic conditions,⁴ but application of disease-specific guidelines to older patients with multimorbidities may result in polypharmacy, an increased risk of adverse drug reactions, and poor outcomes.^{5,6} At the same time, however, older patients are at increased risk of underuse of necessary medication, for fear of polypharmacy or complications.^{7,8}

In an attempt to help optimize prescribing for older patients, investigators have devised numerous tools to guide clinicians, such as lists of indicated, beneficial medication or medication with high potential for harm.^{9,10} Although these tools are helpful in reducing exposure of older patients to inappropriate medication and risk of adverse drug events,¹¹ they do not provide more general considerations, such as when or how to discontinue potentially inappropriate medications, how to balance risks and benefits of unlisted medication, or how to manage medication in special circumstances, such as palliative and hospice care where symptom control is of higher priority. Therefore, the process of determining the medication regimen is inevitably subjective and individualized, taking into account patients' cognitive, physical, and social function, remaining life expectancy, and the goals of care.

Unfortunately, few studies have examined the priorities of health care perceived by health care providers and recipients in geriatric medicine. One small study conducted in England more than 15 years ago showed that geriatricians and patients similarly gave high priority to reducing disability and improving quality of care, and low priority to reducing mortality.¹² However, the serious question of whether there may be a gap in priorities of health care between health care providers and recipients has been raised.^{13,14}

Better understanding of health outcome prioritization among health care providers and recipients in geriatric medicine is necessary

to help physicians, older patients, and their family members discuss the goals of care and to assist health policy makers in effectively using resources to address the needs of older patients. In this study, we aimed to obtain a comprehensive picture of the views of groups with an important stake in geriatric health care services (geriatricians, physicians who commonly see older patients or work in long term care facilities, staff members and participants in adult day care, patients in outpatient geriatric clinics, family members of patients with dementia, and community-dwelling older adults) on the relative priorities of different outcome measures that are relevant to geriatric clinical practice and health care policy.

Methods

Between September 2010 and October 2011, surveys were conducted in the following eight groups:

- (1) All geriatricians (approximately 1500) board certified by the Japan Geriatrics Society
- (2) A total of 5000 physicians randomly selected from the list of board-certified physicians in five subspecialties (two internal medicine subspecialties, two surgical subspecialties, and one other) with high exposure to older patients
- (3) Physicians working in 800 long term care facilities that were randomly chosen from the nationwide list of long term care facilities
- (4) Staff members working in adult day care at 400 randomly chosen long term care facilities as mentioned previously
- (5) Participants in adult day care at the same 400 long term care facilities as mentioned previously
- (6) Patients in geriatric outpatient clinics at five university teaching hospitals (the University of Tokyo, Kyorin University, Nagoya University, Kyoto University, and Tohoku University)
- (7) Family members of patients with dementia who had been seen in geriatric outpatient clinics at four university teaching hospitals (Tohoku University was excluded because of the Tohoku Earthquake at the time of this survey)
- (8) A total of 6000 community-dwelling, functionally independent (ie, not requiring nursing care provided by long term care

Table 1
Survey Methods and Number of Valid Answers in 8 Groups

Groups	Time of Survey	Survey Methods	No. of Questionnaires Sent	No. (%) of Valid Answers*
Health care providers				
Geriatricians	2010, Sep	By post	1500	619 (41)
Physicians in 5 subspecialties	2011, Oct	By post	5000	1305 (26)
Physicians in long term care facilities	2011, Oct	By post	800	384 (48)
Adult day care staff	2010, Sep	By post for each facility	400 facilities (2 per facility)	204†
Health care recipients				
Adult day care participants	2010, Sep	By post for each facility	400 facilities (5–10 per facility)	795†
Patients in geriatric outpatient clinics	2010, Sep	Distributed by physicians and returned by post	950	512 (55)
Family members of patients with dementia	2011, Oct	Distributed by physicians and returned by post	542	333 (61)
Community-dwelling older adults	2010, Sep	By post	6000	2637 (44)

*Responses with missing items or invalid answers were excluded.

†For adult day care staff members and participants, questionnaires were sent to each facility by post, where 2 staff members and 5 to 10 participants were offered the questionnaire; 123 facilities (31%) returned the completed questionnaires.

insurance) older adults randomly drawn from the community registers of two target areas (Kashiwa, Chiba Prefecture, a city close to Tokyo, and Sabae, Fukui Prefecture, a provincial city), from which men and women, 65 to 74 years and older than 75 years, were equally selected

Postal questionnaires were sent to all groups of physicians and community-dwelling old adults. For adult day care staff members and participants, questionnaires were sent to each facility, where two staff members and 5 to 10 participants were offered the questionnaire, to be completed on a voluntary basis. The completed questionnaires were gathered at each facility and then returned to us. Patients and family members of patients with dementia received the questionnaires from their physicians (Table 1).

The questionnaire asked about the relative priorities of 12 health care measures that were derived from a literature review and a previous Internet-based survey conducted by the National Center for Geriatrics and Gerontology in 2009 (in Japanese; <http://www.ncgg.go.jp/pdf/itaku/21hokoku/20si-3.pdf>). Each item was expressed as several words so as to help health care recipients understand the meaning. The respondents were asked to rank the measures in order of priority from 1 (most importance) to 12 (least important). To facilitate ranking the outcomes in order, they were prompted to choose and rank the three most important outcomes, then the three least important outcomes, and last, the six middle outcomes. Ties, or the same ranks, were not allowed.

To examine whether variation in the question wording could affect the results, we devised another version of the questionnaire with different wording for four items and sent that version to a randomly selected subset of participants; however, the results were almost identical (data not shown). We also tested whether the order of health care measures that appeared in the questionnaire would affect the results in a random subset of participants, but the responses to the reverse order questionnaire were similar to those of the original version (data not shown). Therefore, we analyzed the responses from different versions (wording and order) together.

The following information was also collected using the questionnaire: age and sex for all participants; specialty (internal medicine, surgery, psychiatry, or others) and years of experience for physicians; qualification and years of experience for adult day care staff; nursing care level (level of required nursing care: relatively independent, limited impairment, needing extensive help, or severely dependent) for adult day care participants; nursing care level and the existence of relatives who required nursing care for patients in geriatric outpatient clinics; nursing care level, morbid conditions, and the existence of relatives who required nursing care for community-dwelling older adults.

The study protocol was approved by the Ethics Committee of the Graduate School of Medicine, The University of Tokyo. Ethical approval for the surveys on patients in geriatric outpatient clinics and family members of patients with dementia was also obtained from the participating institutions.

Results

The mean response rate for the eight groups was 49%, which varied from 28% for board-certified physicians to 68% for family members of patients with dementia (Table 1). The analytic sample included a total of 2512 health care providers and 4277 recipients.

Tables 2 and 3 show the relative priorities of 12 measures of health care services from the highest importance to the lowest, with mean and 95% CI, perceived by health care providers and recipients, respectively.

All physician groups considered “improvement of quality of life” the most important, and the low mean value for this item across physician

Table 2
Health Care Providers' Priorities for Health Care Outcome

Rank	Geriatricians (n = 619)	Physicians from 5 Relevant Subspecialties (n = 1305)		Physicians in Long Term Care Facilities (n = 384)		Adult Day Care Staff (n = 204)			
		Mean	95% CI	Mean	95% CI	Mean	95% CI		
1	Outcome	2.62	2.45–2.80	3.09	2.96–3.22	2.88	2.62–3.14	4.29	3.88–4.71
2	Improvement of quality of life	4.37	4.15–4.58	4.34	4.19–4.49	4.60	4.32–4.88	4.35	3.96–4.73
3	Effective treatment of illness	4.80	4.53–5.07	4.64	4.48–4.80	4.68	4.39–4.97	4.80	4.42–5.17
4	Maintaining a high level of activity	4.92	4.69–5.15	5.25	5.08–5.42	4.73	4.43–5.03	5.15	4.74–5.55
5	Improvement of physical function	4.94	4.71–5.18	5.32	5.13–5.52	5.50	5.29–5.71	5.26	4.86–5.65
6	Improvement of mental health	6.04	5.87–6.20	5.93	5.79–6.07	5.77	5.51–6.04	5.43	5.03–5.83
7	Resolution of assessed problems	6.39	6.17–6.61	6.12	5.97–6.27	6.10	5.84–6.37	5.83	5.42–6.25
8	Reduction of carer burden	6.45	6.27–6.64	6.39	6.26–6.52	6.22	5.87–6.57	7.17	6.79–7.55
9	Efficient use of resources	7.83	7.67–8.00	7.50	7.37–7.62	8.15	7.95–8.35	7.41	6.95–7.87
10	Improvement of social functioning	8.80	8.62–8.98	8.69	8.56–8.82	8.20	7.95–8.44	7.43	7.04–7.81
11	Avoiding institutional care	10.28	10.15–10.42	10.24	10.14–10.34	10.31	10.13–10.50	9.97	9.71–10.23
12	Reduction of mortality	10.56	10.37–10.76	10.49	10.36–10.62	10.85	10.67–11.04	10.92	10.66–11.17

CI, confidence interval.

Table 3
Health Care Recipients' Priorities for Health Care Outcome

Rank Order	Community-Dwelling Older Adults (n = 2637)			Family Members of Patients With Dementia (n = 333)			Patients in Geriatric Outpatient Clinics (n = 512)			Adult Day Care Participants (n = 795)		
	Outcome	Mean	95% CI	Outcome	Mean	95% CI	Outcome	Mean	95% CI	Outcome	Mean	95% CI
1	Effective treatment of illness	4.23	4.11–4.36	Effective treatment of illness	3.04	2.76–3.32	Effective treatment of illness	2.79	2.58–3.00	Improvement of physical function	3.64	3.42–3.86
2	Reduction of carer burden	4.56	4.44–4.67	Improvement of physical function	4.49	4.19–4.78	Improvement of physical function	4.06	3.84–4.29	Effective treatment of illness	4.33	4.11–4.55
3	Improvement of physical function	5.24	5.13–5.36	Maintaining high level of activity	5.11	4.76–5.45	Improvement of quality of life	5.46	5.19–5.73	Reduction of carer burden	5.40	5.18–5.63
4	Maintaining high level of activity	5.88	5.76–5.99	Reduction of carer burden	5.29	4.98–5.61	Reduction of carer burden	5.52	5.28–5.77	Improvement of quality of life	6.08	5.86–6.30
5	Resolution of assessed problems	5.91	5.76–6.05	Improvement of mental health	5.53	5.24–5.82	Improvement of mental health	5.81	5.58–6.04	Maintaining high level of activity	6.12	5.88–6.37
6	Improvement of mental health	6.26	6.15–6.36	Improvement of quality of life	5.80	5.48–6.13	Maintaining high level of activity	5.97	5.66–6.28	Improvement of mental health	6.38	6.17–6.58
7	Improvement of quality of life	6.36	6.23–6.49	Resolution of assessed problems	5.98	5.69–6.27	Resolution of assessed problems	6.17	5.93–6.42	Patient satisfaction with care	6.44	6.24–6.64
8	Patient satisfaction with care	6.81	6.70–6.92	Patient satisfaction with care	6.01	5.70–6.31	Patient satisfaction with care	6.72	6.47–6.96	Resolution of assessed problems	6.45	6.26–6.65
9	Efficient use of resources	6.91	6.81–7.02	Efficient use of resources	7.49	7.21–7.76	Efficient use of resources	7.46	7.24–7.69	Efficient use of resources	6.57	6.36–6.77
10	Improvement of social functioning	7.44	7.32–7.56	Improvement of social functioning	9.17	8.90–9.45	Improvement of social functioning	8.42	8.18–8.65	Improvement of social functioning	8.22	8.03–8.42
11	Avoiding institutional care	8.43	8.31–8.56	Avoiding institutional care	9.86	9.60–10.12	Avoiding institutional care	9.39	9.16–9.62	Avoiding institutional care	8.61	8.41–8.81
12	Reduction of mortality	9.98	9.87–10.08	Reduction of mortality	10.23	9.99–10.48	Reduction of mortality	10.22	10.00–10.44	Reduction of mortality	9.75	9.55–9.95

CI, confidence interval.

groups indicated physicians' strong preference for this item. All the physician groups also considered "patient satisfaction," "maintaining a high level of activity," and "improvement of physical function" important after "improvement of quality of life," with some variation in the order of their preferences. Geriatricians ranked "effective treatment of illness" the third most important, in contrast to the other two physician groups that ranked this item lower. Adult day care staff ranked "improvement of quality of life" and "maintaining a high level of activity" first and second, respectively, but placed "reduction of carer burden" the third most important, unlike physicians.

With regard to the receiving side of health care, "effective treatment of illness," "improvement of physical function," and "reduction of carer burden" were given high priority, whereas "improvement of quality of life" tended to be perceived as less important.

All the groups, including both health care providers and recipients, ranked "reduction of mortality" the least important, followed by "avoiding institutional care," "improvement of social functioning," and "efficient use of resources," except for the adult day care staff who ranked "improvement of social functioning" higher than "effective treatment of illness."

Stratification analysis demonstrated that the results from physicians were not influenced by sex (male vs female, data not shown); however, physicians older than 60 years tended to rank "effective treatment of illness" and "improvement of physical function" higher compared with younger physicians, who appeared to prioritize "patient satisfaction" and "maintaining a high level of activity." Physicians with more than 30 years' experience, most of whom were older than 60 years, showed a similar tendency, prioritizing "effective treatment of illness" and "improvement of physical function." The results from adult day care staff were identical across groups stratified by age, years of experience, and qualification (data not shown).

The results from the health care recipients did not differ by nursing care level (relatively independent vs limited impairment or higher, or limited impairment vs needing extensive help or higher) for adult day care participants and patients in geriatric outpatient clinics, the existence of relatives who required nursing care (present vs absent) for patients in geriatric outpatient clinics, study site for patients in geriatric outpatient clinics and community-dwelling older adults, or sex for all health care recipient groups (data not shown). Although stratification by age showed that the three measures given highest priority were the same across the age groups (65 to 74 vs older than 75) in community-dwelling older adults, the younger group ranked "reduction of carer burden" first, whereas the older group ranked "effective treatment of illness" first (data not shown).

Discussion

This study is, to our knowledge, the largest survey ever conducted to describe health outcome prioritization in geriatric medicine. We aimed to obtain a comprehensive picture of the views of those involved in decision-making processes in geriatric medicine and compare views between health care providers and recipients. We chose four groups each from providers and recipients that are considered relevant to our purpose. The mean response rate was close to 50%, which was good for a large-scale postal survey and ensured the representative nature of our respondents.

This survey demonstrated that there may be an important gap in health outcome prioritization between health care providers and recipients in geriatric medicine. All health care provider groups, notably physicians, expressed a strong preference for improvement in quality of life (QOL) as a priority of care, whereas health care recipients gave the highest priority to effective treatment of diseases and tended to put lower importance on QOL. In the context of clinical medicine, QOL is often used as a nonspecific, all-encompassing term to describe