

## Assessment of goals and priorities in patients with a chronic condition: a secondary quantitative analysis of determinants across 11 countries

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### ABSTRACT

**Objective:** To assess the impact of patient characteristics, patient-professional engagement, communication and context on the probability that healthcare professionals will discuss goals or priorities with older patients.

**Design:** Secondary analysis of cross-sectional data from the 2014 Commonwealth Fund International Health Policy Survey of Older Adults.

**Setting:** 11 western countries.

**Subjects:** Community-dwelling adults, aged 55 or older.

**Main outcome measure:** Assessment of goals and priorities.

**Results:** The final sample size consisted of 17,222 respondents, 54% of whom reported an assessment of their goals and priorities (AGP) by healthcare professionals. In logistic regression model 1, which was used to analyse the entire population, the determinants found to have moderate to large effects on the likelihood of AGP were information exchange on stress, diet or exercise, or both. Country (living in Sweden) and continuity of care (no regular professional or organisation) had moderate to large negative effects on the likelihood of AGP. In model 2, which focussed on respondents who experienced continuity of care, country and information exchange on stress and lifestyle were the main determinants of AGP, with comparable odds ratios to model 1. Furthermore, a professional asking questions also increased the likelihood of AGP.

**Conclusions:** Continuity of care and information exchange is associated with a higher probability of AGP, while people living in Sweden are less likely to experience these assessments. Further study is required to determine whether increasing information exchange and professionals asking more questions may improve goal setting with older patients.

### KEY POINTS

A patient goal-oriented approach can be beneficial for older patients with chronic conditions or multimorbidity; however, discussing goals with these patients is not a common practice.

- The likelihood of discussing goals varies by country, occurring most commonly in the USA, and least often in Sweden.
- Country-level differences in continuity of care and questions asked by a regularly visited professional affect the goal discussion probability.
- Patient characteristics, including age, have less impact than expected on the likelihood of sharing goals.

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Goal setting; determinants; continuity of care; older patients; chronic condition; multimorbidity; logistic regression model

## Introduction

Multimorbidity, the coexistence of two or more chronic morbidities, is highly prevalent among older people. A cross-sectional study of about one-third of the Scottish population concluded that half of them suffered from at least one morbidity by the age of

50 and most were multimorbid by the age of 65 [1]. The 2014 Commonwealth Fund International Health Policy Survey of Older Adults, which surveyed adults aged 55 and above in 11 countries, confirmed these results. For respondents aged 65 or older, the percentage with one chronic disease varied from 63%

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(New Zealand) to 87% (USA), and the percentage with two or more diseases varied from 33% (UK) to 68% (USA) [2].

Globally, multimorbidity rates are rising due to urbanisation, industrialisation and population aging, increasing the demands on the healthcare work force and resources [3]. In daily practice, the presence of chronic multimorbidity presents a challenge for the decision-making processes between practitioners and patients; applying disease-specific guidelines to patients with multiple conditions is difficult, and this is compounded by the fact that the patients' health-related goals arise from a variety of dimensions [4–7]. An assessment of patient goals and preferences could be helpful for overcoming this challenge [5,8–10]. For individual patients, a goal-oriented approach to healthcare can contribute to their well-being and quality of life, by changing the focus from a disease-specific orientation to the patient's individual health goals. For societies, this approach and change in focus could also contribute to the long-term quality, accessibility and affordability of the healthcare system [1,3,5,8–11].

The 2014 Commonwealth Fund survey found that, for adults aged 65 or older who have a chronic condition, the rate of patients sharing their goals with a professional varied from 23% (Sweden) to 59% (UK), with nine of the 11 countries having rates lower than 50% [2]. Sharing goals is clearly not yet a common care practice; therefore, the aim of this secondary analysis of the 2014 Commonwealth Fund data is to assess which factors determine whether healthcare professionals engage in an assessment of the goals or priorities associated with medical care in older patients with one or more chronic diseases.

## Materials and methods

### *Study design, setting and subjects*

This empirical analysis was designed and conducted based on the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) Statement [12,13]. The Commonwealth Fund's 2014 International Health Policy Survey of Older Adults had a cross-sectional design and surveyed community-living adults aged 55 or older. This computer-assisted telephone survey was conducted between March and May 2014 in 11 countries: Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the UK and the USA. The questionnaire was developed, translated, adapted to local health system contexts, and pre-tested by The Commonwealth

Fund and SSRS, a market and survey research firm, in co-operation with researchers from the participating countries [2,14].

Telephone surveys were conducted among nationally representative samples of adults aged 55 or older, based on a random-digit-dialling method. Sample generation was performed by Sample Solutions Europe (SSE) (Australia, France, the Netherlands, New Zealand and the UK); SM research (Canada); GESIS, Leibniz-Institut für Sozialwissenschaften (Germany); Norstat (Norway); PAR Konsument registry (Sweden); the Swiss Federal Statistical Office (Switzerland) and SSRS (USA). Both mobile phone and landline numbers were used, except for Canada where only landline phone numbers were used. Telephone numbers were dialled on average nine times in the case of non-response. Prior to conducting the interviews, interviewers received written material on the interviews and were formally trained. Survey topics were access to care, chronic conditions and care co-ordination, patient engagement, social care needs and end-of-life care planning. On average, interviews lasted 20 minutes [2,14].

The response rates varied from 16% to 60% across the countries (Appendix) [2], and those with a response rate of less than 20% were dropped from the analysis. The respondents assessed whether they had one or more chronic conditions by answering whether a doctor had ever told them they had any of the medical conditions on a pre-specified list [14]. The surveys for two countries had additional possible chronic diseases: stroke for France and dementia for Switzerland. They were not included in the analyses, as questions about these additional diseases were limited to those two countries.

### *Outcome*

Having one or more chronic conditions was a prerequisite for answering the outcome question. The outcome variable 'assessment of goals and priorities' (AGP) had two categories: 'yes' and 'no.' It was based on the following survey question: 'During the past year, when you received care, has any healthcare professional you see for your (diabetes OR high blood pressure OR heart disease OR chronic lung problems OR depression, anxiety, or another mental health problem OR cancer OR joint pain or arthritis) discussed with you your main goals or priorities in caring for this condition?' In the context of this question, 'OR' means having one or more of these chronic conditions and seeing a healthcare professional for any of them.

### Possible determinants

We clustered three groups of questionnaire-based variables as possible determinants for AGP. The first group consisted of *Patient Characteristics* and included categorical variables on age (Age), gender (Gender) and health status; for health status, we created two variables with accompanying groupings: Number\_of\_Chronic\_Conditions and Chronic\_Disease\_Type.

The second group considered *Patient-Professional Engagement and Communication*. Earlier research defined variables (i.e. a professional asking questions, medical staff explaining things in a way that is easy to understand when explanations about care or treatment are required, and a patient's assessment of time spent in a consultation) that capture patient engagement [15]. We created the categorical variables Asking\_Questions, Explaining and Time\_Spent, respectively. In addition, we created categorical variables about the professional's knowledge of a patient's history (History\_Knowledge), and the exchange of information about stress (Information\_Exchange\_on\_Stress) and lifestyle (Lifestyle\_Information\_Exchange) to build this cluster of factors.

The third group of possible determinants consisted of *Context* variables, including the Country variable (10 categories) and a Continuity of Care (CoC) variable (whether respondents have a regular doctor/healthcare professional, a regular place for medical care, or neither). Table 1 depicts the variables considered to be potential determinants.

### Statistical analysis

Only respondents who had a regular professional or organisation for medical care (indicating CoC) were asked to answer questions about Asking\_Questions, Explaining, History\_Knowledge and Time\_Spent. We considered this to be an important aspect for AGP, and decided to analyse the two populations in a logistic regression analysis. In Model 1, we explored all potential determinants except Asking\_Questions, Explaining, History\_Knowledge and Time\_Spent. In Model 2, we used all potential determinants, resulting in an analysis of the subpopulation of respondents who experience CoC. For the interpretation of the results, an odds ratio (OR) can be seen as a measure of the association between an exposure and an outcome. An OR of 1 means that the determinant does not affect the likelihood of the outcome. For the interpretation of our results, we considered determinants with  $OR \leq 0.5$  or  $\geq 1.5$ , as having relevant (decreasing or increasing) effects on the probability of AGP.

For both models, we analysed the 'missing' data. When considering all respondents and all variables (except Asking\_Questions, Explaining, History\_Knowledge and Time\_Spent), 2.0% of the data were missing; however, when the respondents who answered 'not applicable' were removed, this declined to 1.4%. For the subpopulation of respondents who experienced CoC, the overall 'missing' percentage was 13.6% (6.6% without the 'not applicable' responses). Further analysis suggested that the missing data were randomly distributed; therefore, as a high number of respondents remained, multiple imputation was not necessary and we could focus on a complete case analysis.

## Results

### Respondent characteristics

The original sample size was 25,530 respondents. We excluded all respondents without one or more chronic condition(s) or who had a missing value for the outcome question of the analysis. In addition, Norwegian respondents were excluded based on the 16% response rate for that country. These adjustments resulted in a final sample size of 17,222 respondents.

Figure 1 presents a flow diagram of respondents, while Table 1 describes the variables considered to be potential determinants in relation to the outcome variable, AGP. Of the respondents, 34% were 55–64 years old, 37% were 65–74 years old and 29% were 75 or older; 41% were male. Overall, 42% reported having one chronic condition, 32% reported having two chronic conditions and 27% reported having three or more chronic conditions.

### Model 1

The prerequisite of a complete case analysis led to a final population for this analysis of 16,881 respondents (98%). Table 2 shows the results for Models 1 and 2. Model 1, including all previously determined factors, was statistically significant overall ( $p < .001$ ). For Model 1, the area under the curve was 0.746 (95%CI: 0.739–0.753).

As shown in Table 2, for the whole population (Model 1), there were only three independent variables with an  $OR \leq 0.5$  or  $\geq 1.5$ : Country (living in Sweden), Information\_Exchange\_on\_Stress and Information\_Exchange\_on\_Diet\_and\_Exercise. Having no regular professional or organisation had a borderline impact, while the variables with smaller effects on the probability of AGP were Age ( $>75$  years), Gender (male), having three or more chronic diseases, having a combination

**Table 1.** Univariate analysis of sharing goals and priorities in the Commonwealth Fund International Health Policy Survey of Older Adults.

	Sharing goals and priorities <i>n</i> (%)		Total <i>n</i>
	No	Yes	
Sample	7903 (45.9)	9319 (54.1)	17,222
Population characteristics			
Age (years)			
55–64 (1959–1950)	2457 (41.6)	3447 (58.4)	5904
65–74 (1949–1940)	2903 (45.3)	3506 (54.7)	6409
75 + (1939–1906)	2543 (51.8)	2366 (48.2)	4909
Gender			
Female	4899 (48.1)	5290 (51.9)	10,189
Male	3004 (42.7)	4029 (57.3)	7033
Number_of_Chronic_Diseases			
One chronic condition	3631 (50.7)	3525 (49.3)	7156
Two chronic conditions	2520 (45.8)	2979 (54.2)	5499
Three chronic conditions	1752 (38.4)	2815 (61.6)	4567
Chronic_Disease_Type			
Mental disease only	235 (46.8)	267 (53.2)	502
Mental and somatic disease	1099 (43.3)	1438 (56.7)	2537
Somatic disease only	6546 (46.3)	7594 (53.7)	14,140
Patient-professional engagement and communication			
Asking_Questions			
Sometimes/rarely/never	3096 (60.5)	2020 (39.5)	5116
Always/often	3976 (36.9)	6787 (63.1)	10,763
Explaining			
Sometimes/rarely/never	1024 (61.8)	634 (38.2)	1658
Always/often	6473 (43.2)	8497 (56.8)	14,970
History_Knowledge			
Sometimes/rarely/never	1248 (61.2)	791 (38.8)	2039
Always/often	5959 (41.9)	8248 (58.1)	14,207
Time_Spent			
Sometimes/rarely/never	1427 (60.1)	949 (39.9)	2376
Always/often	6055 (42.6)	8175 (57.4)	14,230
Information_Exchange_on_Stress			
No	6588 (52.3)	6006 (47.7)	12,594
Yes	1201 (27.1)	3234 (72.9)	4435
Lifestyle_Information_Exchange			
No exchange	3901 (67.2)	1902 (32.8)	5803
Exchange on diet or exercise	2080 (47.9)	2266 (52.1)	4346
Exchange on diet and exercise	1782 (26.0)	5069 (74.0)	6851
Context			
Continuity of care (CoC)			
Has regular doctor/GP/NP/PA	6624 (43.3)	8686 (56.7)	15,310
Has regular healthcare organisation	1103 (66.5)	555 (33.5)	1658
No regular doctor/GP/NP/PA or regular healthcare organisation	176 (69.3)	78 (30.7)	254
Country			
Australia	726 (34.2)	1398 (65.8)	2124
Canada	1596 (38.6)	2534 (61.4)	4130
France	490 (47.2)	549 (52.8)	1039
Germany	257 (36.7)	443 (63.3)	700
Netherlands	333 (46.8)	379 (53.2)	712
New Zealand	167 (39.7)	254 (60.3)	421
Sweden	3169 (65.7)	1652 (34.3)	4821
Switzerland	551 (44.3)	692 (55.7)	1243
United Kingdom	186 (32.9)	379 (67.1)	565
United States of America	428 (29.2)	1039 (70.8)	1467

GP: general practitioner; NP: nurse practitioner; PA: physician assistant.

of mental and one or more somatic diseases, and only having a regular organisation (not a regular professional) for medical care. All countries except for the UK had a lower probability rate for assessing patient goals than the reference country (USA).

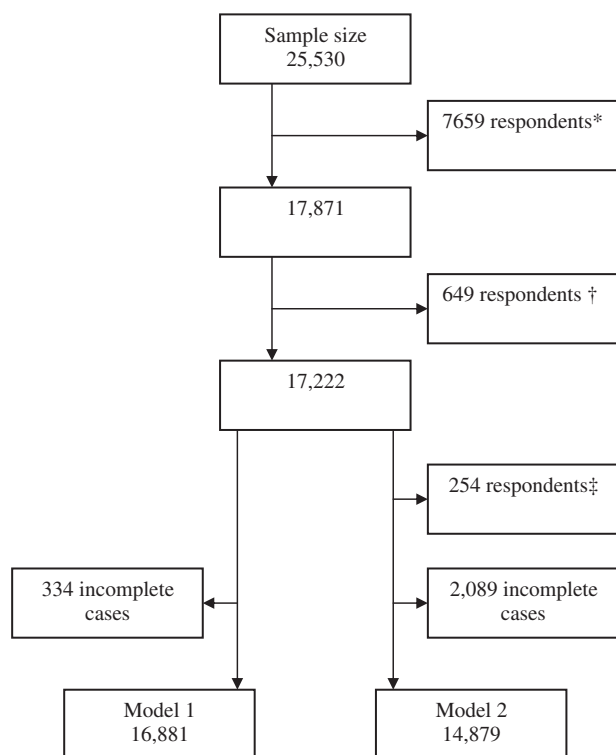
### Model 2

For Model 2, 14,879 (86%) respondents were included in the complete case analysis. Model 2 (see Table 2)

was significant overall ( $p < .001$ ) and the area under the curve was 0.743 (95%CI 0.735–0.751).

As shown in Table 2, for the subpopulation of respondents who experience CoC, the main determinants with OR ratios of  $\leq 0.5$  or  $\geq 1.5$  were comparable to the determinants of Model 1. The only exception was the inclusion of Asking\_Questions.

The remaining variables with smaller effects also had a comparable direction and size of effects to



**Figure 1.** Flow diagram of respondents. \*Respondents with no chronic disease or a missing value on the outcome; †respondents from Norway; ‡subject without a regular doctor/general practitioner/nurse practitioner/physician assistant or a regular health care organisation.

Model 1 (summarised in Table 2). In addition to Asking\_Questions, the variables Explaining, History\_Knowledge and Time\_Spent (specifically explored in Model 2) were statistically significant ( $p < .05$ ).

## Discussion

Our study reveals that CoC and information exchange on lifestyle and/or stress are strong determinants of the probability that goals and priorities will be assessed by healthcare professionals and patient. Patients living in Sweden were less likely to receive AGP than those living in the USA. For respondents who experienced CoC, a professional asking questions was found to be a relevant factor.

Our research has several limitations. First, the response rates differed among countries and were relatively low in general, potentially introducing response bias. Research in Korea using random digit dialling in 2012 and 2014 with a target population of 9600 community-dwelling adults aged 19–79 years reported response rates of 19% and 16% for landline telephones and 14% and 12% for mobile phones [16]. The response rates for The Commonwealth Fund's survey were higher than in the Korean study, indicating

that relatively low response rates are probably to be expected when using this randomisation method; however, the direction of this potential bias is unknown [2]. The weighting of data was not considered to be contributory to our research aim of demonstrating potential associations. Our results provide first insights into the relevant determinants for AGP across countries, but cannot be used to draw conclusions for individual countries.

Secondly, the complexity of the concept of goals must be considered when interpreting the results. In the survey, sharing goals is related to a specific chronic condition(s), with a lack of differentiation between the types of goals; however, as argued in the introduction, disease-specific guidelines are often not applicable to older patients with multiple conditions, and their health-related goals can arise from a variety of dimensions. Moreover, care-related goals for community-dwelling frail older adults are highly individual and relate to well-being as much as to health and functioning [4–7]. This could have led to an underestimation of the sharing of goals.

Furthermore, this is a secondary analysis of the Commonwealth Fund dataset. Ideally, we would have had additional data on the healthcare professionals involved and on the complexity of care required by the respondents. Finally, the determinants of the AGP originate from different levels, the macro level, the meso level and the micro level; however, the meso level (the organisational perspective) was not part of this analysis.

Our study also has several strengths. The underlying survey is an international project with a high level of standardisation in content and execution. In addition, although the survey had relatively low response rates per country, the overall population that could be analysed is large. Moreover, despite the widespread advocacy of shared decision-making (SDM), there is a general lack of details about goal setting as an autonomous element of an SDM approach, as well as its accompanying barriers and facilitators. This is one of the few studies to address this knowledge gap.

To the best of our knowledge, there is a lack of research specifically focussed on goal setting with community-dwelling older patients with multimorbidity. Other research has generally focussed on goal setting with seriously ill (hospitalised) patients [17,18] or goal setting in relation to shared decision-making [19–21].

A wide range of patient characteristics influence the demands on healthcare. Although having more than three chronic diseases was associated with an increase in sharing goals and priorities, while having a combination of a mental and somatic disease was associated



**Table 2.** Logistic regression Model 1 and 2 of possible determinants of the assessment of goals and priorities outcome.

	Model 1		Model 2	
	OR	p value (95%CI)	OR	p value (95%CI)
Constant	0.77	.001	0.38	.000
Age (years)				
55–64 (1959–1950) <sup>a</sup>		.000		.000
65–74 (1949–1940)	1.02	.583 (0.94–1.11)	1.00	.948 (0.92–1.09)
75 + (1939–1906)	0.82	.000 (0.75–0.90)	0.82	.000 (0.75–0.90)
Gender				
Female <sup>a</sup>				
Male	1.23	.000 (1.14–1.31)	1.21	.000 (1.13–1.31)
Number_of_Chronic_Diseases				
One chronic condition <sup>a</sup>		.000		.000
Two chronic conditions	1.13	.005 (1.04–1.22)	1.11	.018 (1.02–1.22)
Three chronic conditions	1.30	.000 (1.18–1.43)	1.33	.000 (1.20–1.47)
Chronic_Diseases_Type				
Somatic disease only <sup>a</sup>		.000	0.000	
Mental and somatic disease	0.67	.000 (0.60–0.74)	0.71	.000 (0.64–0.80)
Mental disease only	1.02	.854 (0.83–1.25)	1.03	.774 (0.83–1.28)
Asking_Questions	NA <sup>b</sup>			
Sometimes/rarely/never <sup>a</sup>				
Always/often			1.60	.000 (1.47–1.75)
Explaining	NA <sup>b</sup>			
Sometimes/rarely/never <sup>a</sup>				
Always/often			1.19	.016 (1.03–1.37)
History_Knowledge	NA <sup>b</sup>			
Sometimes/rarely/never <sup>a</sup>				
Always/often			1.18	.009 (1.04–1.34)
Time_Spent	NA <sup>b</sup>			
Sometimes/rarely/never <sup>a</sup>				
Always/often			1.18	.007 (1.05–1.33)
Information_Exchange_on_Stress				
No <sup>a</sup>				
Yes	1.82	.000 (1.67–1.99)	1.74	.000 (1.59–1.91)
Lifestyle_Information_Exchange				
No exchange <sup>a</sup>		.000		.000
Exchange on diet or exercise	1.98	.000 (1.82–2.16)	1.89	.000 (1.73–2.07)
Exchange on diet and exercise	4.20	.000 (3.86–4.57)	3.75	.000 (3.43–4.10)
Continuity of care (CoC)				
Has regular doctor/GP/NP/PA <sup>a</sup>		.000		NA <sup>c</sup>
Has regular healthcare organisation	0.77	.000 (0.68–0.88)		
No regular professional or healthcare organisation	0.51	.000 (0.38–0.69)		
Country				
Australia	0.82	.012 (0.70–0.96)	0.77	.002 (0.66–0.91)
Canada	0.80	.001 (0.69–0.92)	0.81	.005 (0.70–0.94)
France	0.57	.000 (0.48–0.68)	0.52	.000 (0.43–0.63)
Germany	0.77	.012 (0.62–0.94)	0.76	.015 (0.61–0.95)
Netherlands	0.75	.005 (0.61–0.92)	0.79	.034 (0.64–0.98)
New Zealand	0.71	.006 (0.56–0.91)	0.69	.005 (0.53–0.89)
Sweden	0.32	.000 (0.28–0.37)	0.36	.000 (0.31–0.42)
Switzerland	0.71	.000 (0.60–0.85)	0.68	.000 (0.57–0.82)
United Kingdom	0.99	.954 (0.79–1.25)	0.93	.548 (0.74–1.18)
United States of America <sup>a</sup>				

CI: confidence interval; GP: general practitioner; NP: nurse practitioner; PA: physician assistant; NA: not applicable.

<sup>a</sup>Reference category.

<sup>b</sup>The variables on Professional Attitude and Communication are not applicable to model 1 because they were not used as potential determinants in this analysis.

<sup>c</sup>This variable was not included in model 2 because it was not significant.

with a decrease in sharing goals and priorities, variables in the Patient Characteristics group had less of an impact than expected. For analytical reasons, multimorbidity was defined as having two or more chronic conditions; however, in defining multimorbidity, disease severity and the burden of physiological dysfunctions resulting from the multiple conditions should also be incorporated [22]. These factors together are indicators of the actual complexity of patient healthcare needs. Although the impact is relatively low, our

findings on Number\_of\_Chronic\_Conditions and Chronic\_Disease\_Type are consistent with multimorbidity as described by Zulman et al. [22]. Age (75+) only had a slight impact. The survey was targeted at *community-dwelling* adults aged 55 or older; therefore, the survey respondents, including those aged 75+, were probably relatively capable of engaging in their own healthcare. This may explain why, for this population, age had less of an impact on the probability of AGP than expected.

Variables in the Patient-Professional Engagement and Communication cluster appeared to be relevant determinants for this analysis. Although we cannot draw conclusions on causality, these findings provide initial insights into possible future engagement points, especially when focusing on potential barriers. Information exchange regarding lifestyle and/or stress has a large impact on AGP; however, a study on lifestyle consultations by Dutch general practitioners and practice nurses found that information about lifestyle is mostly given in generic terms and not tailored to the specific patient [23].

Country is a strong contextual determinant. This could be an effect of certain characteristics of different healthcare systems, cultures or other factors, which complicates the interpretation of this finding; for example, Swedish clinicians mentioned that the remuneration system does not allow them to spend enough time on communication, instead emphasising easy accessibility, rapid turnover and reduced performance time [24].

From our analysis, it appears that CoC is a relevant determinant, which is in line with the findings of Kohnke and Zielinski [25] on the association between CoC and the utilisation of Swedish primary care emergency services. Incidence rate ratios suggested that patients with the lowest CoC had a higher number of emergency services visits compared with those experiencing the highest CoC [25]. Furthermore, Hultberg and Rudebeck [26] investigated patient participation in decision-making about cardiovascular preventive drug treatments through the resistance to treatment proposals in Sweden, concluding that the decision-making process extends beyond single encounters, which underpins the importance of CoC. Other studies found that CoC with a general practitioner is associated with lower healthcare costs, higher patient satisfaction and improvements in patient health [27,28]. CoC in general practice is also associated with reduced hospital admissions, especially among heavy users of primary care [29]. The potential contribution of goal setting to these effects is not yet clear.

Other studies have found that time constraints are an important barrier to shared decision-making and goal setting [19,30,31]. In this analysis, Time\_Spent was an assessment of whether the respondents thought healthcare professionals spent enough time with them. In this sense, in line with Osborn et al. [15], Time\_Spent is a variable of patient engagement rather than a contextual factor.

Our research has several implications. To facilitate the consideration of different types of goals in future research, survey questions about different types of

goals and specific healthcare professionals could be added to increase the representation of a goal setting focus in daily practice. Furthermore, survey questions on the complexity of healthcare needs should be added to increase the representation of patients who would probably benefit most from goal setting. Further research based on our findings could consider the determinants and their underlying causal relationships to provide healthcare professionals and policy-makers with engagement points for realising patient goal-oriented healthcare.

In conclusion, our analysis shows that patient-professional engagement and communication and contextual factors are related to the probability of AGP. It also indicates that AGP is most likely to occur in consultations where a healthcare professional asks questions and exchanges information about stress and lifestyle with a patient, though this still varies greatly by country. Considering the context, CoC differences between countries appear to be a relevant factor in explaining the likelihood of AGP, while patient characteristics have less of an impact than might be expected. Quality of care projects may be stimulated to reduce the substantial international variation in this very relevant aspect of setting healthcare goals and priorities with older adults.

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interpretation of the data; writing the report; nor the decision to submit the article for publication.

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## References

- [1] Barnett K, Mercer SW, Norbury M, et al. Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. *Lancet*. 2012;380:37–43.
- [2] Osborn R, Moulds D, Squires D, et al. International survey of older adults finds shortcomings in access, coordination, and patient-centered care. *Health Aff*. 2014;33:2247–2255.
- [3] Bergman H, Karunanathan S, Robledo LMG, et al. Understanding and meeting the needs of the older population: a global challenge. *Can Geriatr J*. 2013;16:61–65.
- [4] Fried TR, Tinetti ME, Iannone L. Primary care clinicians' experiences with treatment decision-making for older persons with multiple conditions. *Arch Intern Med*. 2011;171:75–80.
- [5] Reuben DB, Tinetti ME. Goal-oriented patient care – an alternative health outcomes paradigm. *N Engl J Med*. 2012;366:777–779.
- [6] Reuben DB. Better care for older people with chronic diseases: an emerging vision. *JAMA*. 2007;298:2673–2674.
- [7] Robben SHM, Perry M, Olde Rikkert MGM, et al. Care-related goals of community-dwelling frail older adults. *J Am Geriatr Soc*. 2011;59:1552–1554.
- [8] Mulley AG, Trimble C, Elwyn G. Stop the silent misdiagnosis: patients' preferences matter. *BMJ*. 2012;345:e6572–e6575.
- [9] Tinetti ME, Esterson J, Ferris R, et al. Patient priority-directed decision making and care for older adults with multiple chronic conditions. *Clin Geriatr Med*. 2016;32:261–275.
- [10] Tinetti ME, Fried TR, Boyd CM. Designing health care for the most common chronic condition – multimorbidity. *JAMA*. 2012;307:2493–2494.
- [11] Mangin D. Beyond diagnosis: rising to the multimorbidity challenge. *BMJ*. 2012;344:e3526.
- [12] Vandembroucke JPJ, von Elm E, Altman DG, et al. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration. *Int J Surg*. 2014;12:1500–1524.
- [13] Von Elm E, Altman DG, Egger M, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies. *Int J Surg*. 2014;12:1495–1499.
- [14] Commonwealth Fund. Social Science Research Solutions – 2014. 2014 International Health Policy Survey of Older Adults (cited 2016 May 1). Available from: [http://www.commonwealthfund.org/~media/files/surveys/2014/2014-ihp-questionnaire\\_final.pdf](http://www.commonwealthfund.org/~media/files/surveys/2014/2014-ihp-questionnaire_final.pdf)
- [15] Osborn R, Squires D. International perspectives on patient engagement: results from the 2011 Commonwealth Fund Survey. *J Ambul Care Manage*. 2012;35:118–128.
- [16] Oh G-J, Moon J, Lee Y-M, et al. Public awareness of stroke and its predicting factors in Korea: a national public telephone survey, 2012 and 2014. *J Korean Med Sci*. 2016;31:1703–1710.
- [17] You JJ, Downar J, Fowler RA, et al. Barriers to goals of care discussions with seriously ill hospitalized patients and their families: a multicenter survey of clinicians. *JAMA Intern Med*. 2015;175:549–556.
- [18] Bernacki RE, Block SD. Communication about serious illness care goals: a review and synthesis of best practices. *JAMA Intern Med*. 2014;174:1994–2003.
- [19] Schulman-Green DJ, Naik AD, Bradley EH, et al. Goal setting as a shared decision making strategy among clinicians and their older patients. *Patient Educ Couns*. 2006;63:145–151.
- [20] Bynum JPW, Barre L, Reed C, et al. Participation of very old adults in health care decisions. *Med Decis Making*. 2014;34:216–230.
- [21] Edwards M, Davies M, Edwards A. What are the external influences on information exchange and shared decision-making in healthcare consultations: a meta-synthesis of the literature. *Patient Educ Couns*. 2009;75:37–52.
- [22] Zulman DM, Asch SM, Martins SB, et al. Quality of care for patients with multiple chronic conditions: the role of comorbidity interrelatedness. *J Gen Intern Med*. 2014;29:529–537.
- [23] Noordman J, Koopmans B, Korevaar JC, et al. Exploring lifestyle counselling in routine primary care consultations: the professionals' role. *Fam Pract*. 2013;30:332–340.



- [24] Ekdahl AW, Hellström I, Andersson L, et al. Too complex and time-consuming to fit in! Physicians' experiences of elderly patients and their participation in medical decision making: a grounded theory study. *BMJ Open*. 2012;2:e001063.
- [25] Kohnke H, Zielinski A. Association between continuity of care in Swedish primary care and emergency services utilization: a population-based cross-sectional study. *Scan J Prim Health Care*. 2017;35:113–119.
- [26] Hultberg J, Rudebeck CE. Patient participation in decision-making about cardiovascular preventive drugs – resistance as agency. *Scan J Prim Health Care*. 2017;35:231–239.
- [27] Sans-Corrales M, Pujol-Ribera E, Gené-Badia J, et al. Family medicine attributes related to satisfaction, health and costs. *Fam Pract*. 2006;23:308–316.
- [28] De Maeseneer JM, De Prins L, Gosset C, et al. Provider continuity in family medicine: does it make a difference for total health care costs? *Ann Fam Med*. 2003;1:144–148.
- [29] Barker I, Steventon A, Deeny SR. Association between continuity of care in general practice and hospital admissions for ambulatory care sensitive conditions: cross sectional study of routinely collected, person level data. *BMJ*. 2017;3:j84.
- [30] Légaré F, Ratté S, Gravel K, et al. Barriers and facilitators to implementing shared decision-making in clinical practice: update of a systematic review of health professionals' perceptions. *Patient Educ Couns*. 2008;73:526–535.
- [31] Joseph-Williams N, Elwyn G, Edwards A. Knowledge is not power for patients: a systematic review and thematic synthesis of patient-reported barriers and facilitators to shared decision making. *Patient Educ Couns*. 2014;94:291–309.

## Appendix. Response rates by country [2]

Australia	31%
Canada	28%
France	29%
Germany	26%
Netherlands	25%
New Zealand	27%
Norway	16%
Sweden	23%
Switzerland	60%
UK	23%
USA	24%