

WORKSHOP

WHY DO GENERAL PRACTITIONERS (NOT) SIGNAL? Opportunities and Limitations of Collaboration between General Practitioners and Social Service Providers*

Benedek KOVÁCS–Zoltán GÁLIG–Réka VÁLYI

Hungarian Maltese Charity Service
H-1033 Budapest, Miklós u. 32. e-mail: kovacs@mmszbp.hu

Hungarian Maltese Charity Service
H-1033 Budapest, Miklós u. 32. e-mail: galig@mmszbp.hu

Hungarian Maltese Charity Service
H-1033 Budapest, Miklós u. 32. e-mail: valyi@mmszbp.hu

Abstract: Public health and social welfare subsystems are principally linked together by mutual interest in the basic care of elderly people. General practitioner (GP) services are parts of the social signaling system that promotes revealing unprovided needs. On the other hand, taking indigents into social care would make considerably easier the work of GPs. As a consequence, GPs' signaling should be a general practice everywhere. But social specialists experience the contrary. In order to explain the difference between the unity of interest in principle, and weak collaboration in reality, a theoretical model was elaborated and tested empirically. We have found that social service providers' preferences are not evident for GPs; therefore their willingness to signal depends on their opportunity of obtaining information.

Keywords: elderly people, social services, game theory, lack of information

INTRODUCTION

Elderly people living at home and being in need for caring can get to social provision usually in two ways. Firstly, the aged person or her/his family asks for provision. Secondly, a member of the signaling system may realize the need for caring and initiate the provision. One of the often discussed problems in the social policy is the need for better co-operation among the members of social network, such as district child nurses, nurses, GPs, social workers, child welfare centers, NGOs and charity

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organizations, etc., in order to develop and increase social and health provision of groups who are threatened with social exclusion. The GP is one of the most important members of this real or feasible signaling system.

The collaboration of GPs and basic social services for aged people would be useful for both the social and the health sectors. Evolving proper collaboration would considerably improve the provision for elderly people in their own home and would decrease their exclusion from the field of obtaining social services (Ferge 2002). On the other hand, a primary condition of effective medical treatment in public health is that the patient should not be burdened with social problems. We assumed in the research that GPs often take the social situation into account in their everyday work. At the same time, they rather consider this given and specific risk factor (Oláh 1999) and the close collaboration with social service provider – in order to decrease the degree of poverty or defenselessness – is less frequent, although this could make their work easier. The importance of collaboration between the GPs and social care centers has already emerged in the seventies in Hungary (Mándli and Scheirich 1978), but it still has not become the general practice. However, this situation is not foredoomed to fail since there is a social political pilot experiment conducted at Pesterzsébet, Budapest (Komár 2000, 2003), that exhibits a positive example.

We assumed that the difference between the interests of principle and behavior observable follows from that the social system has not developed in the locality or it is not strong enough as yet, and it cannot fulfill the function it was established for.¹ In the quantitative part of the research we focused our attention on the situation when a social service did exist in the settlement, but it may not have enough power to enforce its own specific political interests. The conflict between principled interests and the economic rationality is a natural concomitant of the subsystem to a certain extent. The demand for social services has risen above the level of provision possible to supply in the Western European countries too (McKinley 1980; Minas 2005).

Our starting point was empirical: we could observe that the collaboration between GPs and social service providers often fails or it is completely missing. This is the problem for what we would like to give a theoretically grounded answer possible to generalize. In this study we try to find an answer to the question: under what conditions does the signaling behavior of GPs emerge? We have used a game theory model for replying to this question. The spadework of the research helped us clarify the validity of some essential presumptions in connection with the model. From the theoretical model we have deduced an empirical model that contains our hypotheses. These were submitted to empirical testing.

THE FRAME OF ANALYSIS AND THE APPLIED THEORY

As we use the game theory for modeling the collaboration between social service providers and GPs we assume the existence of rational actors. This may seem to be an

¹ It is well known that some settlements are not sufficiently stocked with a financed social caregiver's permanent post, while in other settlements the filling of these posts is problematic due to the low wages (ÁSZ 2000).

uncommon assumption in a paper on a social political subject, since supporting is much more connected to altruism or different sorts of value-orientations rather than to self-interest. At the same time, the rational choice theory often uses a theoretical background in other segments of politics or public administration (e.g. public choice theory, Johnson 1999 [1991]). In another respect we think that although altruism has an evidently giant role in social work and in other supporting relations, we hardly could understand a problematic phenomenon with a model, which is only based on altruism. In contrast, the assumption of rational individuals with self-interest is more essential that does not need any further supposition about the individuals (Szántó 1998a). The GP and the social care providing institution, the two players of the examined situation can be analyzed as actors who are motivated by costs and benefits while the opportunities of their action are constrained by external circumstances (norms, social relations or the lack of these factors). In addition to this we suppose a bounded rationality i. e. the field of the logically possible actions is narrowed by such factors as the lack of information.

The players of our theoretical model are the general practitioner (*GP*), who leads a practice for adult patients and the *Provider*, an institution specialized for elderly people's social home care. We examined many aspects of the collaboration relation in the qualitative part of the research. But we tightened the concept of collaboration for the signaling action on the GP's side and for the provision of the aged individual (the subject of signaling) on the Provider's side.

We built an asymmetric game model for the situation. In this case the players are in a different position, and their orders of preference are also different (Tóth 1997). We introduced into the model the assumption that GPs have not got complete information (Szántó 1998b). Incomplete information in a strategic situation means that one player does not know what sort of possibilities of action the other player has, and how much payoffs he or she plays. Incomplete information emerges in our model from that the social provider's payoff depends not only on the utility coming from the actions of GPs and one's own, but it depends also on a third factor, which is the supply-capacity of the provider. The cost of collecting additional information may be high or collecting further information may not be feasible in fact. Under these circumstances it may be rational that either the player chooses a mixed strategy (Kreps 1990) or assigns a subjective probability (Hirshleifer and Riley 1998) for each outcome. An estimation of the subjective probability may originate from the previous actions what can be considered a result of a learning process or may rise on the basis of the information got from other persons (reputation, Raub and Weesie 1990). We drew our model in the extensive form of the game (Kreps 1990). This form contains more information than the strategic one, since it also includes the dimension of time, so that it takes into consideration how much information the players have at that moment of choice made.

According to our assumption the GP can choose between two kinds of action when (s)he meets a dependent old person: to signal or does not signal to the provider. If the GP does not signal, the game will be over and the GP should meet the expenses of caring and nursing the dependent old person. (Even if social caring is not a public health duty.) If the GP does signal the Provider will enter the game. The Provider also has two options: it either takes care or does not take care of the elderly reported about.

If the Provider takes care of the elderly mentioned above, the GP will come off well, otherwise the GP will be loaded with the cost of caring. Furthermore, the GP pays for the subjective cost of signaling. The Provider's willingness of caring depends on two factors. The first one is a financial issue: how can the local authority supply the resources for this obligatory public task? The second one is the professional motivation of caregivers. The deficit of resources and the unmotivated attitude were not separated in the research, for the sake of simplicity they were built into the model labeled "lack of resources".

The model covers two cases. In the basic case the Provider does not have enough resources for caring for the elderly person reported about, thus it could be done only under bad conditions. In this case the GP's defection is the probable result. In the other (special) case the Provider has enough resources for caring,² this way the Provider is interested in caring, consequently signaling and caring are the probable outcome. In our model the problem rises from that the GP has not got exact information about the possible payoffs that the Provider could get at the moment of decision making. In this situation the GP's payoff is determined by subjective probability (Hirshleifer and Riley 1998) of caring after his or her signaling activity. The GP can estimate this subjective probability from the outcome of previous interactions and from external factors such as whether he was informed about the possibility of signaling, or was asked to signal. In other words, the GP should take a decision under the condition of his or her set of information that does not cover the complete information set. For this reason the GP needs some guarantee that he or she does not signal in vain and that it is very likely that the elderly person will be taken care of.

Why do GPs not Signal?

If social service provision supplying capacity is limited; the relation between the number of signaling GPs and the increase of Provider's utility is not linear. This rather could be depicted with a flattened curve: after a critical point additional signaling activity is not beneficial for the Provider because it cannot take care of more elderly people since it has not got enough caregivers. If the Provider is not interested in additional caring, it will not encourage the GP to signal. Moreover, the Provider may express that signaling is not welcome and it can refuse to take care of the elderly in need. This attitude may weaken the GP's willingness to signal. On the other hand, there may be other reasons of not signaling that are independent of the local government's financial deficit. If caregivers have an unmotivated attitude to their profession they will make little effort to inform the GP about the possibility of caring. GPs lacking information possibly have less willingness to signal. They may not know exactly what to expect from the social service. A third one is that the frequency of signaling is determined by its costs and benefits. It should also be noted that subjective

2 In the time of the research (2004) the social policy financing system does not interest local authorities to provide caring to all the elderly people in need. For that very reason the assumption is justified, that in the "basic case" providers have resources deficit. This assumption also was supported by the interviews.

cost of signaling may not be too high and this will decrease if there is a well-established communication channel between the two players.

We supposed that dealing with elderly persons without social caring means a relevant extra cost for the GP ($C_C > 0$). Besides the subjective cost of signaling is much less than the cost of caring, but not without cost, since signaling may be unpleasant after repeated refusal ($C_C > C_S > 0$). If the Provider takes care of the elderly person (SC – social care) the GP will be exempted of the load of caring and the GP supposedly will get further benefit since one of his or her patients gets into a better situation. We denote this by the GP's payoff change +1. In case of not signaling (NS) the Provider's payoff is 0. If the GP signals and the Provider does not take care of the elderly person reported about (NSC) the Provider's payoff will be determined by the unpleasant nature of unanswered signaling (-1). If the Provider takes care of the aged person (SC), the Provider's payoff depends on the available resources. In a basic case the Provider has not got enough resources and payoffs are formed as follows:

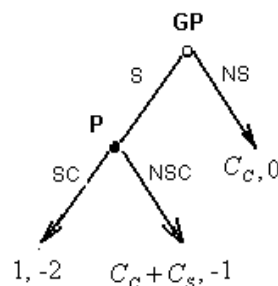


Figure 1

Since the Provider has not got enough resources for caring, taking care means getting worse (-2). Beside these payoffs the GP has not got the dominant strategy but the Provider (P) has a dominant response. A Nash equilibrium will be reached when the GP is not signaling ($C_C, 0$).

Of course this is simplistic, as theories usually are. For example, it is conceivable that social providers admit elderly people sent by general practitioners but they uncover their real preference saying that they may refuse taking care on next occasion. They may ask the GP not to signal so frequently or not to advertise social service, etc. It is equal to not taking care in our model because these utterances weaken the GPs' willingness of signaling.

In the other case the Provider has enough resources for taking care of the elderly person. In the present case the GP's payoffs are the same, but the Provider is interested in home care. If the Provider takes care of an elderly person in need it will avoid the unpleasantness caused by unanswered signaling (-1). Moreover, it gains additional benefit from the well-being of the elderly person, because under the condition of proper resources the Provider is interested in the welfare of old people. Now payoffs are formed in the following manner:

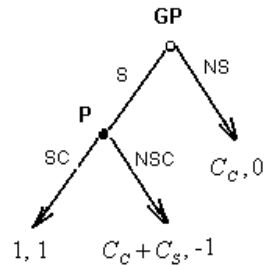


Figure 2

In classical game theory players know the other player's strategy set and payoffs. We suggest a model where the problem arises from that the GP has not got exact information about the possible payoffs that the Provider could get at that moment. This is because there is no direct information exchange between the two players. According to *Figure 3* the signaling GP cannot know where will (s)he come, i.e. (s)he moves S or S'.

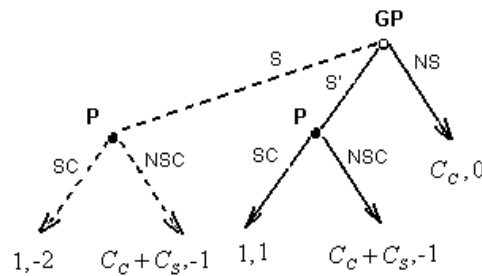


Figure 3

The strategy of the GP under this condition is determined by the subjective probability of S and S'. In other words the GP tries to maximize the subjectively expected utility. In practice the GPs naturally may deviate from this strict principle, because the player's attitude against risk is also stated (Hirshleifer and Riley 1998). This question, however, was not examined, because from the point of view of social policy it is not relevant.

Beside the payoffs above the GP will signal if:

$$p1 + (1 - p)(C_c + C_s) > C_c$$

That is

$$p > -\frac{C_s}{1 - C_c - C_s}$$

Thus the GP's strategy depends on the cost of signaling and caring. But even if the cost of signaling is so high that it approximates the cost of caring, it is worth signaling

at a probability of 0.3. If the cost of signaling is much less than the cost of caring (C_S/C_C ratio is low), then the GP will also be interested in signaling beside much less p value. The relationship between C_S/C_C ratio and p value is plotted in *Figure 4*.³

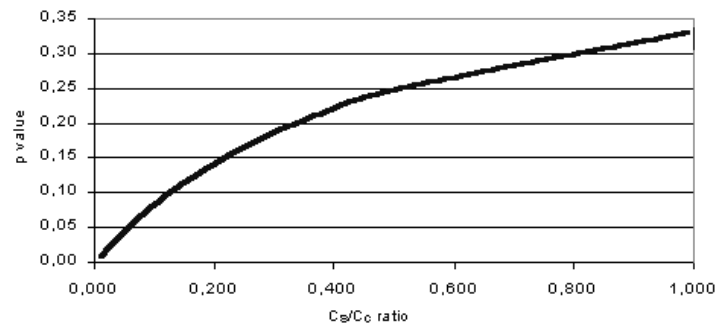


Figure 4: Relationship between C_S/C_C ratio and p value

As in reality the subjective cost of signaling is supposedly low enough, we come to the conclusion that the GP will not signal only in two cases. The first one is when p value is very low. This is the case when the Provider permanently defects. It also may be that the Provider sometimes collaborates but expresses more frequently that they will not be able to take care of more elderly people in need. The second one is when the GP has not got any information about home care, thus he or she does not know the possibility of signaling.

These consequences were completed by one more theoretical possibility. Although the subjective cost of signaling is not too high, this may be decreased by a well-established communication channel between the two players. For this reason we should take into consideration the effect of social relations. Interpersonal social relations provide the communication channel that helps to mediate signaling activity. This communication channel, however, does not emerge automatically and if the GP has to establish this relation, the cost of signaling will be higher. So if there is a connection – a frequent communication – between the GP and the Provider, it is more likely that the GP will signal. Thus we have built our empirical model on the basis of three theoretical elements which are: information, the subjectively expected probability and the effect of social relations between the players.

The GP can estimate the expected subjective probability of S' from the outcome of previous interactions and external facts such as information about the capacity of supply. It is true that the GP originally has a relatively strong willingness to signal because without social home caring he or she will bear the cost of caring. But if one has a great deal of negative experience about the other player's activity, the GP will be

3 The following chain helps in the interpretation of Figure 4. Where signalling is inexpensive (C_S/C_C ratio is low) the GP also signals beside lower probability of J'. Where signalling is costlier (C_S/C_C ratio is high) the GP signals only beside higher probability of J', because he or she has a higher risk.

interested again in signaling only if he or she could get a guarantee that the signaling will not be wasted.

Empirically Tested Model

The starting point in our theoretical model was the signaling strategy of general practitioners (GPs). It mostly depends on how willing the social service providers are to supply GPs, however, their willingness is determined by their capability to supply. A GP in our model has two ways of interaction with social service providers. The social service provider has either got enough resources for the care for the elderly mentioned above or it cannot afford it. In addition, during repeated interaction the resources of the Provider can change. It can occur that the GP meets decreasing or increasing willingness for supply. Thus GPs have to collect information regarding this matter about the Provider. On the one hand the GP relies on existing information as he was perhaps asked to report or at least he was informed about this possibility. On the other hand, he can use previous experiences as a guideline or he can ask the Provider itself in case they have a communication channel.

According to our empirical model the GP's willingness to signal (*WS*) depends on the following factors:

$WS = f(I, P, C)$, where

I: information about the possibility of signaling, the preferences of the Provider, the services of home care

P: the experience of previous interactions (in general how many days it takes to receive positive feedback from the social service provider, what he thinks of the services)

C: how developed the communication channel is.

Based on these we formed the following hypotheses:

H1: An extensive information set encourages the GP to signal

H2: Previous interactions with providers influence the GP's willingness to signal

H3: If there is regular communication between the GP and the social service provider the GP makes signals more often.

These hypotheses are deduced from the theoretical model. Hypothesis H1 in fact consists of two sub-hypotheses. The first one is that GPs signal less often if they have less information about the activity of their partner in the interaction. In an extreme case they are not even aware that they can signal. It is more likely that they know about the possibility but cannot recognize the advantage of it. We operationalized this phenomenon with two variables expressing whether the GPs were informed about the possibility of signaling and how familiar they were with the activity of home care. The second sub-hypothesis is that GPs signal less often if they are uncertain about the preferences of the providers. As a direct result of this there is a decreasing probability that 'J happens. We measured this by asking whether the providers asked the GPs to report when they meet elderly people in need. Hypothesis H2 declares that previous positive experiences encourage signaling. Successful collaboration also means an

increasing probability that 'J happens. In other words, GPs are convinced that it is worth signaling. We operationalized this with two variables. On the one hand, expressing how long it takes to receive positive feedback about the care for an old person. On the other hand, indirectly expressing how appropriate (professionally good) GPs find the activity of the provider.

According to hypothesis H3 a well established communication channel increases the willingness of signaling as it decreases the subjective cost of it. If the leader of the provider and the GP regularly communicate in person or on the phone about other matters it is more likely that signaling will happen as well. We tested this by asking whether there was regular communication between the leader of the provider and the GP.

We also examined the effect of a few controlled variables that can occasionally modify the effect of certain explanatory variables. These are the following:

- The size of settlement
- The number of social security ('TAJ') cards in the practice
- The ratio of patients above the age of 65 in the practice
- The number of nurses in the practice.

We assume that these do not modify the effect of the explanatory variables.

The theoretical model is based on the information acquired in the qualitative part of the research. Therefore in the qualitative part that served as a preparation of the research, we tried to get more information about the relationship of the two parties.

THE PREPARATION OF THE RESEARCH QUALITATIVE PART

In Budapest we made prior interviews with two general practitioners and one leader of a social service provider. After this we chose a few settlements from the Nagykáta sub-region (Nagykáta, Süllyás, Tápiószecső, Tápióság) where we made semi-structured interviews with the participation of one GP in Tápióság and two GPs in each of the other settlements. We added further interviews with a mayor and the leaders of two social service providers. These interviews were revealing and helped elaborate on the theoretical part of the research.

Our basic questions were the following: Is there a real interdependency between the two players? What are the GP's alternatives to make decisions? Is collaboration and in this way signaling expensive for the GP? Is signaling really useful for the social service providers? What are the decisive factors of signaling?

The Conclusions of the Interviews

In a GP's practice the social problem occurs in two ways. Either the patient cannot afford to finance his medication, treatment, etc., or he is unable to take care of himself and lacks social relationships. Both cases make medical treatment more difficult as well, but we only examined the second one.

The possible answers to this are the following: hospital care, care in a social institution and home care. The disadvantage of hospital care, as many GPs say, is that

the side effects of staying at the institution are often more serious than the originally diagnosed disease or condition. At the same time it is more and more difficult to place the elderly at a hospital for the winter, although it used to work in practice earlier.

Getting into a social institution is voluntary. In case the old person does not want to go, this alternative is ruled out, unless he can be convinced to stay at a social institution that offers temporary or permanent care. On the other hand, social institutions have a long waiting list; people might have to wait for a year or more to get in. For this reason the chance that old people's homes appear as a real alternative form of social care decreases. Consequently the remaining option is home care. For the elderly this is the most desirable one, but from the GP's point of view is a lot of extra work. For them, merely regarding financial interests and the invested work, taking care of the elderly at their homes is hardly worth doing. The GPs we interviewed gave mainly moral and not professional reasons for preferring home care. Many of them emphasized that in fact this was not profitable. At the same time the truth is that quite often the decision is made by the elderly, GPs can only influence this decision. In general old people insist on living at home as long as possible.

When we enquired about the medical care of these old people who live at home and do not get any help from their family, most GPs said it was in their best interest to contact the social service provider. On the one hand it relieves them of part of the work and they can focus on medical care. On the other hand they are concerned about the hygienic conditions they have to work in. Despite all this there were some GPs that interestingly enough did not find this a natural solution. It turned out that the connection between the GP and the coordinator of social home care practically does not exist. Of course they inevitably met some caregivers during work as it was necessary. In one place they mentioned the importance of "personal relationships" and location in collaboration ("becoming neighbors is an advantage, before we became neighbors it had been more difficult, but we could work it out"). Two interviewees mentioned an alternative solution. They emphasized the potential role of neighbors in care giving. Neighbors or relatives who live somewhere else mainly help to buy medicines or do other kinds of shopping. Whenever it is more than that, it does not work, because there are not too many people who would do it altruistically or as a duty. However, many old people only need this kind of help.

When openly asked, nearly all interviewees confirmed that they definitely needed social care to be involved in cases when the patient was aged and could not entirely take care of himself. In some cases they mentioned that they did not always ask for help, because the number of caretakers was low and their signaling was not welcome. It was also revealed that some local governments did not "advertise" home care so that the demand did not rise too high.

There is an interesting variant of the relationship between the GPs and the social service providers (mentioned by three GPs). Here they have a regular contact, but indirectly, through the local authority. In an interview with the chief of one of the social service providers it was mentioned that GPs did not regard social workers as partners. Despite this they were willing to talk to officials. At the same time we think that there is a different explanation for all this. It is possible that signaling towards the local authority is

in fact a step the GP takes to get information (Hirshleifer and Riley 1998), since he does not know if he can signal and what the preferences are at social services.

During the interviews with the GPs it became clear that they did not think about social care as a profession, it was rather something that people without skills and experience could do. One interviewee told us that younger patients in his practice applied for “social work”, not as volunteers, but as part-time employees. Naturally, he could not employ them, but he only mentioned financial reasons, not the lack of skill or experience. In a different case the GP thought the solution for the social problems of the isolated elderly in need would be a support group among themselves. Our conclusion is that a certain amount of doctors are not totally aware of the role and the means of social care. It is not clear for them what is within the competence of social care. No wonder they do not know how to co-operate with them, when, why or what they can expect from the social partner. For them social care is giving a bath, buying medicines or doing the shopping, they typically did not include a helping conversation and they prefer to do it themselves. During the interviews we asked doctors about the social care system, but many of them blurred the work of caretakers together with unprofessional help. Obviously some of them did not see a significant difference between the two.

The interviews show that signaling itself does not mean a subjective extra cost for GPs in case they have been doing it for a while and they are familiar with it. At the same time they need prior information, e.g. where and how to signal, etc. For this reason the cost of the first signaling can be higher than the profit of it. For instance an interviewee, the leader of a social service provider said that the GPs in the settlement started signaling more after they received a detailed written description of home care from him.

In the interviews we asked about the history of signaling, too. We were curious about the origins of this requirement or practice. The signaling activity of GPs is not an old phenomenon; it was hardly present two decades ago. Based on the interviews there seem to be two reasons for this, a social and an institutional reason. On the one hand the structure of institutions was different in the seventies. Social home care (local care) only started to spread. Before that home care had been done by “district nurses”, closely related to the practice of GPs. Social care became independent from healthcare only gradually, therefore the need for signaling on either side could only appear after that. It was only after the two sub-systems had separated that the problem of connecting them came up. There were social reasons of signaling as well. One GP said that the tendency of the younger generation moving away from their parents in rural areas has only intensified in the last few decades. It had been unusual for the elderly to be alone before. In addition – parallel to the previous process – a few decades ago it was a shame for a child not to take care of his old parents. According to the interviewee society or the local community does not condemn them as much today.

Experiences Built into the Theoretical Model

The conclusion we drew from our interviews is that the practices of GPs undoubtedly need social service providers; in other words, home care makes the GP’s work easier. A report written by two GPs in the second half of the seventies (Mándli and Scheirich

1978) confirms this. It is also clear from the interviews that signaling itself is not a burden for GPs and we did not find instances of non-co-operative behavior on the GPs side while the social service provider was willing to work together.

As we could not examine collaboration from the social service providers' point of view in this research, in our model we assume that signaling from GPs is useful for them, but only if they have the resources to take care of the elderly reported about. As opposed to this the lack of resources i.e. a low number of caregivers means an extra cost for them and signaling from GPs is not welcome. On the one hand, this assumption involves that taking care of the clients reported about decreases the number of people in need in a settlement. Eventually this is the purpose of social care, therefore it is useful. At the same time if the local authority cannot provide the resources the social service providers are not expected to do an excellent job. This assumption is mixed with two of our basic observations: *a)* collaboration is beneficial for GPs, because it makes their work easier; *b)* signaling does not mean considerable costs for them. We created our theoretical model based on these observations.

METHODOLOGY

In the course of data collection 2800 questionnaires were sent by post to adults' GPs. Choosing addresses was attained by using layered random sampling based on GPs' address list of Medinfo. The questionnaires were sent back by 414 GPs. Within this number the settlements of 364 GPs are supplied with social home service, but those of 50 GPs are not. On the basis of regional distribution of GPs replying it can be concluded that the questionnaires from Northern Hungary were sent back in a very small rate. The distribution by counties gives more details where the replies failed to come in. Thus, e.g. no answer came from Counties Somogy and Borsod-Abaúj-Zemplén, while only one GP sent back the questionnaire from County Nógrád.

Accordingly, our sample to work on was not representative from territorial point of view. However, this cannot be considered a deficiency because in the frame of this study no regional comparisons were planned. (A working hypothesis was done that territorial distribution is independent of explanatory variables).⁴ A more serious problem which has been taken into account from the beginning was that our sample was also not representative in respect of the original dependent variable, i. e. signaling or not signaling. The (unintentional) selection according to the dependent variable furnishes an alternative explanation to the analysis (Moksony 1999), thus, the impact of the explanatory variable cannot be separated from the impact of distortion due to failures. Therefore, our dependent variable was somewhat modified; not the fact of signaling/not signaling but the frequency of signaling plotted on ordinal scale was investigated. We supposed that the frequency of signaling is independent of distortion originating from failures because GPs could not know exactly how often they "should" signal. (In this respect we did not have any preconception). It may be true that a part of GPs marked a signaling frequency higher than in reality, but this problem emerges in

4 This is not proved to be true in reality, but this issue has not been investigated in our study.

case of all data collections by questionnaires and can be considered independent of sample distortion due to failures.

The sample was reduced to the sub-sample where a social home caring does exist in the settlement and our empirical model was tested on this sub-sample.

Table 1. GPs Replying by Region

Region	Case	%
Middle Hungary	71	17.1
Middle Transdanubia	40	9.7
Western Transdanubia	76	18.4
Southern Transdanubia	38	9.2
Northern Hungary	14	3.4
Northern Plain*	80	19.3
Southern Plain	73	17.6
Lack of answer	22	5.3
Total	414	100.0

*Plain: The Great Hungarian Plain

Table 2. GPs Replying by Countries

County	Case	%
Baranya	22	5.3
Bács-Kiskun	37	8.9
Békés	20	4.8
Borsod-Abaúj-Zemplén	0	0.0
Csongrád	16	3.9
Fejér	15	3.6
Győr-Sopron-Moson	27	6.5
Hajdú-Bihar	25	6.0
Heves	13	3.1
Komárom-Esztergom	13	3.1
Nógrád	1	0.2
Pest	71	17.1
Somogy	0	0.0
Szabolcs-Szatmár-Bereg	32	7.7
Jász-Nagykun-Szolnok	23	5.6
Tolna	16	3.9
Vas	20	4.8
Veszprém	12	2.9
Zala	29	7.0
Lack of answer	22	5.3
Total	414	100.0

The Variables We Examined

The vast majority of GPs asked (96.2%) signal regularly when they meet a patient in need of social care. In 14 cases altogether it was reported that they did not report. This result probably does not reflect the right ratio as it is likely that the GPs that do not report sent the questionnaire back in a much smaller proportion than their colleagues who do so. (Those who are co-operative with home care services are more co-operative with research trying to explore social services.) This way the *signaling/not signaling* binary variable was omitted from the analysis. Instead we measured the willingness of reporting by the frequency of reporting. The question may arise if the questionnaire does not include those who do not report, can we compare anything? Can we have a proper dependent variable? Luckily reality is never black and white and we can characterize collaboration with other things than merely by the existence or lack of signaling. For one thing we assume that the sample includes those who do not signal but gave a low number for the frequency of signaling instead of admitting they did nothing. On the other hand there may be a reasonable difference between GPs regarding the frequency of signaling. These differences show us how important they find collaboration with the social partner. In the analysis we characterized the co-operative behavior of GPs with the frequency of signaling, and we examined the conditions that make them signal more or less often.

The Examined Variables and the Method of Analysis

Our dependent variable, the frequency of signaling was an ordinal variable; the majority of our explanatory variables were categorical variables. Therefore we chose ordinal regression analysis to examine the set of variables.

Our dependent variable – “How often does he report?” – contains five categories. Categorical variables are: “Was he asked to signal by the social service provider?” and “Was he informed about the possibility of signaling?”, “What is the service like in the settlement?” and “Does he communicate with the person in charge of home care at least once a month?” Continuous variables are: “Within how many days does he receive feedback about the care of an old person?” And finally continuous derived variable is: “How much does he know about the activity of a caregiver?”

For controlled variables the continuous variables “*the number of patients’ card*” (social security cards), “*the ratio of old people in the practice*”, “*the number of population*” and the categorical variable “*the number of nurses in the practice*” were used.

RESULTS

By using ordinal regression analysis we tested two models; the first included only explanatory variables, the second one included control variables, too. Fitting of both models was adequate (deviation from the basic model without variables proved to be significant). Among explanatory variables only two proved to be effective; asking a GP, and systematic

communication with the leader of social service provider. These were shown to have significant impact also when introducing control variables. Both explanatory variables had a positive impact.⁵ Although the cross-table analysis revealed relationships in case of several explanatory variables (e.g. for variables measuring hypothesis H2) these, however, showed no significant impact in the more rigorous process.

Table 3. Results

	Model 1		Model 2	
Chi-Square ⁶	59.490***		60.598***	
Df	7		11	
	Estimated Parameters	Standard Error	Estimated Parameters	Standard Error
Dependent Variable				
Sign Frequency=1	-3.605***	0.576	-3.245***	0.701
Sign Frequency=2	-1.543*	0.545	-1.161	0.676
Sign Frequency=3	-0.638	0.539	-0.220	0.671
Sign Frequency=4	0.051	0.535	0.487	0.670
Explanatory Variables				
How far does she know	-0.050	0.051	-0.077	0.053
Time of feedback	-0.012	0.009	-0.012	0.010
Was informed=0	-0.067	0.178	-0.054	0.187
Was informed=1	0+	–	0+	–
Was asked=0	-0.398**	0.153	-0.342*	0.160
Was asked=1	0+	–	0+	–
What is the provider like=1	-0.136	0.186	-0.102	0.195
What is the provider like?=2	-0.129	0.154	-0.130	0.160
What is the provider like?=3	0+	–	0+	–
Communication=0	-0.721***	0.141	-0.667***	0.147
Communication=1	0+	–	0+	–
Control variables				
Number of patients' card			0.000	0.006
Ratio of persons over 65			0.009	0.000
Number of population			0.000	0.000
Number of nurses=0			-0.110	0.140
Number of nurses=1			0+	–

+Reference category within the categorical variables.

Significance level: *95%, **99%, ***99.9%

Among the hypotheses tested only H3 was confirmed by the found relationships. According to this GPs' signaling willingness depends on the question whether a

5 The reason of minus signs in the Table is that asking GPs and existing frequent communication were involved as reference category; therefore the estimated parameters were calculated by the programme for the lack of these.

6 The tested models were run at Complementary log-log link function.

systematic communication exists between the service provider and the GP. Our results could not confirm the first sub-hypothesis of H1 that GPs' signaling willingness is increased by the awareness of signaling possibility and more detailed information about social service. At the same time, the clear knowledge of providers' preferences seems to have a perceptible influence on GPs' behavior. Besides, the tested relationships did not confirm the hypothesis H2 (based on our assumption relating to the impact of previous experiences of the game) which involves the impact of signaling time and the opinion of providers' activity.

Our results did not confirm some particular parts of our empirical model; however, this does not exclude the justification for existence of our theoretical model. The fact that a simple information on the signaling possibility or on its consequences (caring) is not sufficient for GPs, and their signaling willingness will increase only if the adults' taking into social provision seems to be ensured, can be explained in two ways: either signaling costs are more than assumed, or adults' treatment by GPs does not mean a significant surplus burden. From the point of view of model validity a more important question is why the experiences of previous interactions do not influence the signaling willingness. If our variables ensured reliable and accurate measurement, the success or failure of previous interactions does not give any relevant information on the question whether the person in need will be provided in the future. Accordingly, on this basis the providing willingness of the social service provider cannot be assessed.

CONCLUSIONS

According to our results the GPs' willingness to signal is primarily influenced by the fact of whether they were asked by the social service provider to do so, or if they communicate with the social services. We have to mention the possibility that a different theoretical model offering an alternative explanation could give similar results. In this model the GPs would not have any interest in signaling about the elderly in need of social care. At the same time communication and being approached to signal would provide a kind of social control mechanism (Heckathorn 1989; Coleman 1990) to motivate them to signal. Our interview experiences, however, contradict this alternative model. During the personal conversations we found that GPs do urge development in the field of collaboration with social service providers, and taking care of the elderly in need is a condition of successful healthcare work. Therefore we insist on our original model with one alteration. Since signaling means a certain subjective cost for GPs they need a guarantee that their signaling is welcome. Besides asking GPs to signal part of the solution would be regular communication between the team of GPs and the people in charge of home care. It would lower the subjective costs and even with a lower probability of care-giving it would be worth signaling. Some GPs might have negative experiences with social care. Some problems might be caused by the low number of caregivers and limited supplies. Nevertheless these do not have an effect on their willingness to signal because the future capacity of providing supplies is not predictable.

Finally, we evaluated the results from the point of view of social policy. Besides the obviously low number of caregivers, which is a financial issue, we found two major problems. One is that signaling from GPs is still not an explicit expectation. Unfortunately some GPs might think that there is no use in signaling. The other problem is that communication between the social service provider and the GPs is less than satisfactory and that makes signaling more expensive than it would normally be. If there is an existing communication channel between the GP and the social service provider, expectations regarding signaling are explicit and signaling itself becomes easier. The absence of this could be originated from an unmotivated attitude, not only a financial deficit. The effects of the two are not separated in the research. Therefore it is not impossible that social services might intentionally be negligent with the deficit of resources behind their attitude. Or they might not be prepared enough to see the opportunities of collaboration. Most GPs signal if they think it makes sense. There is no need to motivate for it is in their best interest. In addition, many GPs are convinced it is their duty to act.

Based on the results and supported by the interviews we think that good collaboration is always up to the care centre and its management. The interviews reflect the opinion that in many places they think a few connections with GPs solves the problem. They cannot see that because of the neglected districts a lot of the elderly are out of sight. Again, it might just be their limited capability to meet all the expectations. We made a low number of interviews in settlements without a proper social care system. Here the local government cannot undertake the home care of old people in need and is trying to put the growing burden on the families and neighbors. This way they can save on paying so many caregivers. Conclusively, where neighbors and families cannot help and demand outstrips supply, signaling will die out or will not even start. GPs will not signal in vain. This can prove harmful, as the social service provider's lack of goodwill prevents possible future collaboration. These reasons made us suggest the following to make the home care for the elderly a more attractive alternative for GPs.

- There is no need for specific legal motivation aimed at GPs
- It would be desirable to define what should social services do to “keep in touch” and “co-operate” by law. We think that keeping contact in person or on the telephone is their duty. We find it important to approach GPs one by one to give them detailed information and ask them to signal. The same should be done when a new GP starts his practice somewhere.
- Caregivers' further training and increasing their number is an obvious suggestion. It has still not turned out whether the new financing system (introduced in 2005) could help this or not.

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