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Variable Cost a Patient of a Social Exclusion

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***Abstract* – Decision makers within the system are constantly required to make choices, as well as seek alternative ways to measure the unit costs of illness. One of the factors that makes it difficult to optimize the scope of health services is the phenomenon of social exclusion, which is increasingly affecting society. The author intends to demonstrate the links between social exclusion and the higher costs of treating patients belonging to this social sector, unlike other patients who are neither unemployed nor live in poverty.**

***Keywords* – Social Exclusion, Society, Cost, Health System.**

I. Introduction

The healthcare system in Poland is an organism that requires continuous monitoring by the management decision-makers. This action is necessary, even if only because of the varying structure of supply of patients which has an increasingly negative effect on patients needs and expectations with respect to health services. Therefore, the demand for health services will continue to be evaluated as a market phenomenon growing not only in quantitative, but also, as shown in earlier observations, in qualitative terms. We can conclude that patient awareness is increasing, which in turn increases the demand for healthcare and medical services. Patients expect a higher level of service to be provided by medical personnel through better and more accurate diagnosis, positive interpersonal relationships and improved speed of service, taking place on the basis of service "without queues".

Another problem that has been diagnosed in the healthcare system is the phenomenon of social exclusion, which is occurring more frequently and reaching a mass character. This is a consequence of the economic crisis, the low level of per capita income and an increasing unemployment rate recorded by the BEAL method [1].

One of the factors impeding the process of optimizing the provision of services in the field of public health is the phenomenon of poverty in society, which is one of the most important public policy objectives [2]. With the development of economy, the phenomenon of poverty has become a component of public intervention at a time when interest in policies to improve the situation of the poor is not only the result of moral arguments, but also relates to the political and economic aspects of the analyzed phenomenon.

In the second half of the nineteenth century, the phenomenon of poverty has become a component of public intervention at a time when an interest in policies to improve the situation of the poor is not only the result of moral grounds, but also relates to political and economic aspects of the analyzed phenomenon.

A lack of measures aimed at combating the causes of poverty may, in the long run, lead to an even more dangerous phenomenon known as social exclusion, which is preceded by material depravity; characterized by a persistent lack of specific goods and services, such as durable products, standards of living, levels of consumption or financial liabilities and savings [2]. This in turn leads to a reduction in health and a decrease in resistance to various diseases and conditions, resulting in an increase in demand for health services, whether this means emergency first aid or hospitalization in a hospital ward.

Dynamic changes in the health system from the early 1990's to the present day have brought about a significant number of modifications on the plane of legal and formal, organizational, staffing, competence, insurance and financial sectors. The most important factor in determining the evolution of the health care system is the form and method of financing of the health system. The aim is to meet the needs of people using medical services and at the same time account for a stable source of income for employees of the system and systematic investments in fixed and mobile assets.

II. Reasons for Exclusion

Social withdrawal from various aspects of life leads to a person becoming poorer and less socially active than those who are free of social exclusion.

It should be remembered that the poor do not have to be excluded, and the excluded do not necessarily have to be poor, although both of these phenomena are often seen to accompany each other [2].

This statement is identical to the insights of A. Smith, who saw poverty not only in the material realm, but also in the immaterial.

The above statement concurs with the insights of A. Smith (late eighteenth century), who recognized that poverty existed not only in the material realm, but also in the immaterial. He identified the concept through welfare, the possession of which allows one to feel worthy (without a sense of shame) in a public space [3] and exist in a dignified and financially self-sufficient manner.

Poverty must not be seen as a solely economic problem, but rather as a multidimensional phenomenon that includes both a lack of income and the opportunity to live in decent conditions [4]. Such welfare thus depends on the socio-economic context and the economic environment [5].

In relation to this phenomenon, the concept of marginalization is often used, which is defined as exclusion from participation in the social life of individuals, groups or societies on a global basis in relation to their social environment [6].

It is understood that two main factors contribute to exclusion, frequently occurring simultaneously or in a sequential fashion.

It concerns the phenomenon of unemployment and poverty [7], which can occur in a variety of configurations

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and relationships. Different situations may occur in which a person who is employed and receiving a salary sufficient for at least a decent life will be released, and will fall into the group of unemployed persons as a consequence of the use of savings, resulting in a need to lower the standard of living which may degenerate into a state of poverty.

In another case, a person employed as a low-paid worker and supporting several children may be known to be poor or living in poverty. According to legal and formal regulations, Polish law distinguishes different definitions of the concept of poverty; the so-called subsistence level (defined in 2011 in the amount of 26.85 zloty per person per day) as opposed to the so-called subsistence minimum (this is the amount of PLN 14,19 per person per day. As at October 1, 2012, the social group classifying for the minimum subsistence level represented a volume of 11.8% of society, proving that one in every nine Polish citizens lives in poverty and even misery. Such a mass phenomenon indicates the significance of the problem and points to the aspects that have to be resolved.

The category of social exclusion is broader and more complex than poverty, and at the same time vaguely covered in literature. This term is derived from the definition of relative deprivation formulated by J. Townsend, and refers to a standard of living below which one is not guaranteed to play social roles and participate in social relations and customary behaviour characteristics and find value in membership in the society [8].

III. A Retrospective Analysis of Social Exclusion in Poland

On the basis of secondary data derived from research conducted by the Public Opinion Research Centre (abbreviation: CBOS) in September of 2013, it can be seen that the factors which most affect the growth of the risks of exclusion in society are:

- Material situation
- Health [9].

In the case of social groups affected by exclusion, at greatest risk are those in which deteriorating financial situation and health status are experienced. Consequently, this has an impact on the growth of the total cost of treatment. In Poland, studies have been conducted that indicate a link between social exclusion and an increase in the unit cost of treatment of persons classified in this group.

By following a query in the area of scientific publications and research reports conducted at the level of a country or region, it can be said that in recent years studies were carried out whose interest were the following phenomenon: poverty, unemployment, the level of society and social exclusion. However, the impact of these phenomena in the context of the rising unit cost of treating patients in the healthcare system has not been generally analyzed.

The analyzed data shows that social problems associated with poverty and social exclusion are present in Poland.

According to those surveyed, groups at risk of marginalization (an intermediate state of social exclusion) include the unemployed, the sick, the disabled and the poor. As many as 43 percent of respondents believe that the unemployed have least chance of achieving their needs; 20 percent of respondents indicated that the sick and the disabled are persons who are at risk of marginalization. However, according to 18 percent of respondents, this phenomenon may also apply to the poor and impoverished.

These results indicate that the phenomenon of marginalization in social perception is related to the state of unemployment, poverty and poor health.

There are also other important results, which show that every eleventh respondent stated that they felt excluded. In this group, the majority pointed to economic factors and their health situation. A total of 46 percent of respondents said that they were excluded because of their financial situation, and 31 percent pointed to health reasons.

This indicates that a large group of people who are ill, often with low-income and requiring additional care, are already excluded.

In summary, it can be stated emphatically that in Poland, research has been conducted on the measurement of the number of excluded people, the causes of marginalization, unemployment, and methods for their limitation, but an in-depth analyzes of the social impact of these negative socio-economic phenomena that involves the greater element of Polish society has not yet been carried out.

Research on the impact of the excluded on increased social and public costs in Poland has not taken place.

IV. Introduction to the Study of the French Experience in the Relationship between the Costs of Treating Patients and Social Exclusion

In France, an interesting study was conducted, the results of which were published by the author for the purposes of this study, in order to indicate the relevance of the problem and the costs that are generated due to low social and economic status within society.

In brief, the study was intended to assess the level of cost absorbency in health care services provided to typical patients showing no impairment and those with so-called social exclusion.

In the study group, indicators of uncertainty were collected, which formed the basis for substantive studies. The analysis benefited from the classification of monetary indicators, which focused on the financial resources held by representatives of French society. It was assumed that a person was excluded economically when they achieved income less than or equal to 560 euros per month for a single person in a French household. Secondly, the poverty rate is identified based on the number of recipients of social assistance. It is also an indicator that identifies the "conditions of life", which are defined by the National Institute of Statistics and Economic Studies (INSEE, 1991.), based on a ratio measured at the level of 28 dimensions of everyday life.

The analysis plane of aspects of inequality had a three-

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dimensional character, comprising of:

1. Economic and social status of the person (the following indicators were calculated: how many cars were owned, continuous or periodic employment, income level, the classification of the social group) [10],
2. Socio-demographic indicators (separated by age, place of residence, gender and ethnicity) [11],
3. Environmental indicators, which included living conditions, working conditions and social support [12].

In addition to the formulation of analysis planes, the researchers built the goals they wanted to achieve into both stages of the research.

In the first stage, the focus was on the identification of the existence of a relationship between exclusion and the cost of treating the patient. This was quantitative in nature and the objectives were as follows:

1. To identify of patients with disabilities - socially "disadvantaged" - and measure the incidence of socially excluded patients;
2. To assess the impact of social disadvantage on the cost of treatment in hospital;
3. To assess the personal needs and the need for health care in the impaired group of patients., measuring the level of costs according to groups: typical patients and patients from socially disadvantaged groups;
4. To determine the level of the additional amount necessary to treat people requiring this special help;
5. To propose solutions to the problem of socially disabled patients for the management of hospitals.

In turn, in the second stage of the research, more attention was focused on determining the specifics of this phenomenon in hospital patients. The objectives of this study were as follows:

1. Improve the tools developed in the first study to improve the disadvantage identified in the selected measuring tools;
2. Review the possibility of replacing the quantitative questionnaire evaluating the quality of life;
3. Check the sensitivity of the measuring device.

V. Research Results

In this publication the author cites borrowed research data, which is used to demonstrate the links between social exclusion and the costs of treating patients. The results were based on a survey questionnaire method performed on a composite sample of about 2,500 people, which were tested in two stages of research. The considerations took into account in several areas:

- Health,
- Financial situation,
- Cultural integration,
- Relations with other people,
- Resources,
- Property
- And inheritance.

Characteristics of the groups of respondents are presented in Table 1 and include a structure of people who, for a variety of reasons, were not taken into account in the analysis of research data.

Persons included in the study were divided according to the criterion of social disadvantage. The entire sample was divided into three groups. The first group comprised of patients without compromise, those not showing any problems associated with exclusion. The second group of patients consists of people having a moderate disability. Patients qualifying for the third group are those with a high degree of social impairment, showing a significant or serious disability.

The data presented in Table 2 shows the structure of respondent situation, in which the dominant group of respondents were derived from two groups belonging to the wider labour market; people with jobs, that is, economically active and those made redundant, i.e. inactive.

Together, these two groups represented 78.7% of patients in the first stage and 69.8% in the second stage. This information shows that a pool of 90% of respondents are persons of working age, and only a fraction - less than 10% - of those work in pre or post-production.

TABLE 2. The structure of respondent.

	Survey 1		Survey 2	
	Number	Percent	Number	Percent
Professionally active	284	56,3	305	43,8
Registered unemployed	27	5,4	59	8,5
Unemployed not registered	16	3,2	24	3,2
Students	16	3,2	19	2,7
Dismissed	113	22,4	181	26,0
Housewives	25	5,0	40	5,7
Other inactive	23	4,5	59	8,5
Unknown	0	0,0	9	1,3
Total	504	100,0	696	100,0

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

TABLE 1. Structure of the research sample.

Types of groups	Survey 1	Survey 2
Participants	1094	1475
Deceased	7	4
Health deteriorated	80	0
No change, staying on the ward	36	483
Questionnaires not completed	320	1
Questionnaires completed, but poorly filled	13	0
Language	49	75
Refusals	85	93
Persons included in the study	504	696

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

Within the area of health, three indicators were taken into account: mortality rate (*Morbi*), risk index (*RISIKI*) [13], including the terms of indication, e.g. concerning working conditions (*Risk*) (*IDEM*) and, in the second stage, the rate of disability (*INCAP*).

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In terms of health, the individual subjects reported a greater handicap status in the first study than in the second. As many as 58.2% of respondents were affected by impairment to at least a moderate degree in the first study, whereas in the second study this was a smaller group of subjects and represented 14.5% of the surveyed patients. This factor has a significant impact on the phenomenon of exclusion only among respondents from the first stage of research. In the second stage, the relationship between social exclusion and quality of health was not established.

TABLE 3. The situation of the respondents in the area of health.

Exclusion level	Survey 1		Survey 2	
	Number	Percent	Number	Percent
No impairment	144	28,6	595	85,5
Moderate impairment	274	54,4	90	12,9
Hgh degree of impairment	19	3,8	11	1,6
Unidentified class	67	13,2	0	0,0
Total	504	100,0	696	100,0

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

Table 4 presents data showing the state of impaired respondents in terms of the so-called resources with the following indicators: quality of life based on the amount of income (revenue) and uncertainty, which is the so-called poverty rate (PRECAT).

In this area of research, most subjects demonstrated a moderate or high degree of deprivation. This indicates that income is an important factor that affects the degree of social exclusion.

TABLE 4. The situation of the respondents in terms of resources.

Exclusion level	Survey 1		Survey 2	
	Number	Percent	Number	Percent
No impairment	97	19,2	185	26,6
Moderate impairment	147	29,2	345	49,6
High degree of impairment	140	27,8	166	23,8
Unidentified class	120	23,8	0	0,0
Total	504	100,0	696	100,0

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

Another area of research involves the so-called cultural integration, which consists of two indicators, i.e. enrolment ratio (*SCOL*) and the index of cultural activity (*CULTI*). They show the level of education and cultural activity of respondents, and are indicators of the average degree of influence on the creation of impairment due to cultural integration.

TABLE 5. The situation of the respondents in the area of cultural integration

Exclusion level	Survey 1		Survey 2	
	Number	Percent	Number	Percent
No impairment	166	33,0	264	37,8
Moderate impairment	176	34,9	287	41,1
High degree of impairment	129	25,6	130	18,6
Unidentified class	33	6,5	15	2,5
Total	504	100,0	696	100,0

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

In another area, the author analyzed relationships with other people, based on two indicators: the index of family relationships and relationships with related indicators, in particular contact with neighbours. Just as in the case of cultural integration, the area of analysis also can be defined as an average range of topics related to social exclusion.

TABLE 6. The situation of the respondents in the area of relationships with other people.

Exclusion level	Survey 1		Survey 2	
	Number	Percent	Number	Percent
No impairment	217	43,0	308	44,2
Moderate impairment	183	36,3	176	25,3
High degree of impairment	55	11,0	212	30,4
Unidentified class	49	9,7	0	0,0
Total	504	100,0	696	100,0

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

We spend our lives surrounded by family, friends, acquaintances and people we meet or pass on the street. Public, professional and personal life largely depends on the impact of the behaviour of other individuals, groups and communities [14].

Effective communication allows the existence of the due process of interaction between people, which is not only advisable but even necessary for the proper functioning of an organization. Of particular significance is the communication process in organizations becoming "open" to the environment in which employees maintain permanent relationships with their customers. It should be noted that due to the stability of the composition of personnel (small changes in employment) it is easier to manage internal contact, a situation that is different in the case of relations with the public.

Table 7 presents data showing the level of residential involvement in the area of disability relating to social exclusion, taking into account the interior comfort index (CI), relating to the quality of domestic appliances and the housing location indicator (LOCA), which is a measure of location relative to places of cultural, labour and other significance.

In analyzing the two indicators identified for use in this area, it was noted that in the first stage test there was a large correlation between exclusion and the housing. In

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contrast, in the second stage, an average degree of relationship was demonstrated.

TABLE 7. The situation of the respondents in the area of housing.

Exclusion level	Survey 1		Survey 2	
	Number	Percent	Number	Percent
No impairment	62	12,3	321	46,1
Moderate impairment	252	50,0	297	42,7
High degree of impairment	127	25,2	78	11,2
Unidentified class	63	12,5	0	0,0
Total	504	100,0	696	100,0

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

The results of research in the field of inheritance are presented in Table 8. The analysis included two evaluation criteria: tangible assets (IMMO ratio) and movable assets (ratio MOBI).

Analysis of the resulting findings indicates that in the area of inheritance, there are important links between the indicators and the phenomenon of social exclusion. In the studies, the total impairment was 82.2% in the first study and 79.7% in the second. This was a high rate, confirming the impact of this area on the appearance of marginalization in society, which in turn leads to social exclusion.

TABLE 8. The situation of the respondents in the area of inheritance.

Exclusion level	Survey 1		Survey 2	
	Number	Percent	Number	Percent
No impairment	52	10,3	133	19,1
Moderate impairment	161	32,0	298	42,8
High degree of impairment	253	50,2	257	36,9
Unidentified class	38	7,5	8	1,2
Total	504	100,0	696	100,0

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

A summary of the research is included in Table 9, which shows the people according to the degree of disability. It illustrates that 67% of respondents in the first stage and 74% in the second stage have a moderate or high degree of disability.

TABLE 9. Distribution of respondents according to the criterion of belonging to a disability group.

	Survey 1	Survey 2
No impairment	33	26
Moderate impairment	42	55
High degree of impairment	25	19

Source: Compiled on the basis of studies in the "Avicenna" group of hospitals in Paris

Of the six thematic areas analyzed, three of them (resources, housing and inheritance) demonstrated a significant impact on social exclusion.

Health and cultural integration are planes whose relationship to social exclusion are above average but cannot be classified as factors showing significant interaction with the relationship analyzed.

The weakest link was shown to be the area of relationships with other people, which should be treated as a result of the phenomenon of social exclusion, rather than the cause of its occurrence.

VI. Conclusions of Research

The author, based on a literature query along with secondary data presented based on analysis by a team led by professor Camal Gallouj, presented the conclusions in terms of ex-post and ex-ante evaluation.

Ex-post conclusions refer to a past situation, to the historical background; the situation as it was before, and on this basis it is possible to diagnose the impact of that situation on the current state, which is based on the data collected. Conclusions of the second analysis include interpretations of the status quo and form the starting point to predict the situation in the health system in the absence of any interventions in patients with those characteristics assigned to the socially excluded. The conclusions of the ex-post analysis show that relationships between the analyzed areas and the phenomenon of social exclusion have a medium and even large dependency and demonstrate cause-effect relationships.

Diagnosing a patient with one of the factors in the area of resources, housing and inheritance can lead to him qualifying for a group of people with deprivation in the field of social exclusion. Those who qualify for this group have the following properties, based on a qualitative analysis carried out in the second stage of the research.

Such Characteristics Include:

1. Patients with social disabilities remain in hospital longer, increasing the patient's per unit cost to the healthcare system compared to patients without such dysfunction.
2. The study showed a typical need to extend the stay by 1 to 2 days, In terms of the number of Poles belonging to socially excluded groups, assuming that 1 in every 100 Poles will be hospitalized once a year, the annual effect on hospitals will be in the region of 43.000 people hospitalized with this dysfunction, which amounts to between 43.000 to 86.000 man-days. This is a significant amount of extra working time and consequently spent funds.
3. In terms of the total for the entire study sample, this represents a total of 21.345 more days in hospital per annum days than for patients not affected by impairments in the area of social exclusion.
4. This value translates into additional costs, or the equivalent of approximately 3.300 additional hospital admissions, which is already a considerable expense. The cost, estimated on the basis of this data, totals an average of 11.000.000.000 Euros annually across the whole of the French health system. In Poland, this cost will be lower in financial terms, however, in relation to per capita expenditure it is certainly higher, and thus

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more important for the balance and realignment of supply to meet the needs of patients.

On this basis it can be concluded that the income and the phenomenon of heredity (also significantly related to income) is the dominant determinant having a negative influence on the social situation and sensitivity to disability.

The health status of such disadvantaged groups is degraded, but their status is not the main reason for the additional burden they impose upon the system. The costs of health care services performed in hospitals in favour of disadvantaged people are not sufficiently covered by hospital income. The additional needs of this group of patients are not usually medical, but instead socially motivated.

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