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## **RISK OF SOCIAL EXCLUSION AND SOCIAL SECURITY OF THE ELDERLY AGE PERSONS IN RUSSIAN REGIONS**

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An article presents results of the construction and approbation of a theoretical model of evaluation of risk social exclusion of population in the context of social security of elderly age groups in Siberian regions. It bases on the results of sociological research (2016) in three Russian regions: Altai region, Trans-Baikal region and Kemerovo oblast (n =779 age of respondents from 55 (women) and 60 (men) years and older). In theory, the model lays on the following: in is determined by economic (material) deprivation, deprivation of social rights (access to social institutes and services) and deprivation of security (safe environment), deprivation of social participation, cultural (normative) disintegration and social autism; the above named components are specific for the group of elderly people, that is a priori a high risk of exclusion; risk of social exclusion, as a condition and situation of exclusion can be estimated straightly through the manifestation of its dimensions; the model has a one-way causality, i.e. the manifestation of one of its dimensions can lead to the high manifestation of the social exclusion. Basing on dimensions, operationalized in questionnaire, we calculated as an index of components of the social exclusion, as the total social exclusion index for elderly people including its regional correlations.

**Keywords:** *social risk, security, social exclusion, people of elderly age groups, model of social exclusion, condition and situation of exception, indexes of social exclusion.*

## **РИСК СОЦИАЛЬНОЙ ЭКСКЛЮЗИИ И СОЦИАЛЬНАЯ БЕЗОПАСНОСТЬ ЛИЦ ПОЖИЛОГО ВОЗРАСТА В РЕГИОНАХ РОССИИ\***

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В статье представлены результаты построения и апробации модели для оценки риска социальной эксклюзии населения старших возрастных групп регионов России в контексте сохранения их социальной безопасности на основе социологического исследования, проведенного в 2016 г. в Алтайском и Забайкальском краях, Кемеровской области (779 человек 55 (женщины) и 60 (мужчины) лет и старше). Теоретически предложенная модель основана на следующем: она определяется депривацией социально-экономической (материальной), социальных прав (доступ к социальным институтам и услугам) и безопасности (безопасная среда), социального участия, культурной (нормативной) дезинтеграцией и социальным аутизмом. Названные компоненты и индикаторы специфичны для группы индивидов пенсионного возраста, которая а priori потенциально является группой риска социальной исключенности. Риск социальной эксклюзии как состояние и ситуация исключенности может быть прямо измерен через выраженность компонентов модели. Модель имеет одностороннюю казуальность, то есть выраженность одного из индикаторов компонентов эксклюзии может привести к большей выраженности социальной эксклюзии. На основе операционализированных компонентов социальной эксклюзии проведен расчет как индекса компонентов, так и общего индекса социальной эксклюзии пожилых, в том числе его региональные сравнения.

**Ключевые слова:** *социальный риск, безопасность, социальная эксклюзия, население старших возрастных групп, модель социальной эксклюзии, состояние и ситуация исключенности, индексы социальной эксклюзии.*

Problems of the ageing are usually considered in connection with global processes, such as industrialization or globalization (Bashkireva, Vylegzhanin, Kachan, 2013). Yu. O.V. Krasnova (2017) characterizes the ageing as ‘the age of bad adaptation», because the aged person has certain somatic and psychical changes, promoting to transformations in relation to family life and the environment, as a rule. Psychic and social statuses of the elderly people are changing, it reflects in reducing of physic and social opportunities (Saponov, Smolkin, 2012).

According to M.E. Elyutina (2015), I.A. Grigoryeva, A.S. Bikulov (2015), the processes are complicated by dominating social understanding about contiguity of the ageing, illness and death and negatively influence on individual status of the elderly man and makes his/her dependent from the others and, consequently, leads to social exclusion (Maximova et al.).

An idea about “social exclusion”, initially described deprivation of citizens with limited abilities, obtained its conceptualization in works by K. Walsh, coauthors (Walsh, Scharf, Keating, 2017), and was described by indexes of risk and protective factors, different political conditions people need to deal with. In wider sense, social exclusion could be determined as “process, resulting for individuals and their groups became fully or partly excluded from participation in social affairs” (Hrast, Mrak, Rakar, 2013). Hence, two principal moments could be specified in the concept of social exclusion. First, social exclusion

is the multidimensional notion. People, for example, could be excluded from society because of unemployment, wage, property, minimal consumption, level of education, quality of life in country, and citizenship. Owing to it, excluded people testify about insufficient close contacts and respect. However, the concept of exclusion focus attention on multidimensional nature of deprivation, i.e. people often deprived from many “social factors” simultaneously. At the same time, exclusion (deprivation) can reveal in economic, social and political spheres (Saponov, Smolkin, 2012). Second, social exclusion assumes relation to certain interconnections between individuals, their groups, and processes, which led to deprivation. Individuals could be excluded from different types of groups at the same time (Bonfatti, 2015).

Factors of inclusion into social exclusion are poverty, subordination in the system of social identities (race, ethnicity, religion, and gender), social positions (refugees, migrants), demographic characteristics (education, professional qualification, and age), and health condition, disabilities or stigma, such as the HIV or the AIDS.

A model of social exclusion, developed by The Social Exclusion Knowledge Network (SEKN) (Popay, Escorel, Hernández et al., 2008) presents it as result of action of four interdependent factors (social, cultural, economic and political) at different levels (individual, group, household, local communities, countries, and the world in whole). The given multidimensional model often lies in the base of scientific analysis of exclusion. Hence, the explicit connection between exclusion and rights let to cover discrimination basing on gender, ethnic and religious peculiarities, limitations in health, and so on.

The purpose of the paper is the conceptualization, creation and approbation of the model of social exclusion of the elderly age population in Siberian regions.

### **Theoretical model of exclusion**

We suggest conceptual model of exclusion for empirical testing and evaluating of the level of exclusion of the elderly population of three Russian regions. The abovementioned approaches formed the bases of the model. The model correlates with the poverty concept, but its opportunities are rather limited in explanation because social exclusion reflects not only the process of exclusion (dynamic characteristics) but also the condition of exclusion (static characteristics). Social exclusion can have material (economic) expression (distributive dimension of exclusion) and non-material characteristics (relative dimension of exclusion). The reasons of social exclusion should be considered as at collective as at individual level.

That is, initially we specify two dimensions of exclusion situation and condition of exclusion, material and non-material dimensions. However, material component (or situation of exclusion) is described by such components as social-economic (material) deprivation (MD), deprivation of social rights (DA) – access to social institutes and services, and deprivation of security (Envr) (safe environment). Non-material component (condition of exclusion) disclosed through the deprivation of social participation (SP), cultural (normative) disintegration (CD) and social autism (SA).

Material factors of risk of social exclusion often underlie in the base of individual factors of risk, interact with biological factors of risk, less sensitive to invasions, but often

act as means identification of citizens (families or other groups). They include situation aspects of life in poverty, low consumption standards, and overcrowding of living (Milbourne, Doheny, 2012; Najstsub, Bonfatti, Duda, 2015). Thus, N. Delfani and coauthors (2015) demonstrated influence of stable poverty on social exclusion.

Social-cultural components of exclusion are described in the concept of cultural capital by P. W. Kingston (Kingston, 2001), he describes how shared norms determine individual's behavior and attach importance to the group membership. Through norms and socialization, cultural norms "limit and prescribe opportunities of individuals, including in control of own life" (Rozanova, Keating, Eales, 2012).

Social resources reflect inclusion and affiliation to social networks, providing personal access to information and support of others (Saponov, Smolkin, 2012). Social resources could include weak and strong networks (Victor, Bowling, 2012) and networks, providing emotional and instrumental supports (Warburton, Cowan, Winterton et al., 2014), build on the community of interests, activity, family or other ties, uniting individuals and dominantly localized in private sphere (Ogg, Renaut, 2012). We suggest to consider social resources as indexes of social-cultural components of social exclusion, because individual do not select own gender of ethnicity, but they are able to choose or not to choose friends, interests and even relatives.

Many researches consider civic and politic participation as separate spheres of exclusion (Serrat, Villar, Celdrán, 2015), but include them into social resources, because political and civic participation is highly formalized, and public social resources are connected with organization structures (Popay, Escorel, Hernández et al., 2008).

SA component, called as "social autism", reflects personal resources, ability to see advantages in current situation and does not depend on economic, cultural or social status. These are micro-level resources, including psychological attitudes, psychological wellbeing and abilities (Anisimov, Zharinov, 2013; Dahlberg, McKee, 2014).

Hence, the model bases on a number of assumptions: 1) social exclusion – is a multidimensional phenomenon, reflecting as economic-structural as social-cultural aspects of life; theoretically it is determined by MD, DA and Envr, SP, CD и SA; 2) the above-named components and indicators are specific for the group of individual at the elderly age, which is potential groups of risk of social exclusion; 3) social exclusion as a condition and situation of exclusion could be directly measured through the expression of its components; 4) the model has one-way casualty, i.e. the expression of one of indexes of exclusion components could lead to higher social exclusion.

## **Materials and methods**

In testing of the model of social exclusion of persons of the elderly age participated 779 citizens of three regions of the Russian Federation of 55 (women) and 60 (men) years and older, 28.5 % of men and 71.5 % of women among them. In women's subsampling was 30.7 % of women at the age of 55 – 59 years, 32 % - 60 - 64 years, 21 % - 65 - 69 years, 16.3 % - 70 years and older; among men: 55 % - 60 64 years, 27.5 % - 65 – 69 years, 15.8 % - 70 – 74 years, and 1.8 % 75 years and older. With taking into consideration relations between spatial characteristics and expressing of social exclusion (K. Walsh [26]),

we stress, that the research was realized in the Altai and the Transbaikal kray, and the Kemerovo oblast.

Thus, each theoretical statement about indexes of social exclusion was operationalized in terms of the questionnaire. Social-cultural component of exclusion, or situation of exclusion, was described by three components with selected indexes of exclusion: 1) *MD* (20 indexes); 2) *DA* (27 indexes); *Envr* (22 indexes). Social-cultural exclusion, or condition of exclusion, was also described by three components, including a number of indexes: 1) *SP* (25 indexes); 2) *CD* (19 indexes); 3) *SA* (13 indexes)

In addition, we specified a number of micro-level risk factors of exclusion, part of which presented non-corrected factors, and the other – by the corrected ones. Non-corrected (independent) risk factors of social exclusion: sex, age (for women  $\geq 55$  years, for men  $\geq 60$  years); single living; status (employed / unemployed pensioner); pension amount; marital status; religion; pensionable service; type of settlement (urban / rural). Corrected (dependent) risk factors: physical activity; health condition; absence of own home; low education level; coping-strategies; evaluation of material condition; level of adaptation after retirement.

We calculated the social exclusion index, which is the summary value of expression of six components of social exclusion: *MD*, *DA*, *Envr*, *SP*, *CD*, and *SA*. To determine the expression of each index we transformed the estimation scales: the higher the index value, the higher social exclusion of the elderly people. Each index in the set were estimated basing on self-estimations of the elderly population by suggested scales, fixed in the questionnaire. Possible summary point by *MD* was 81 (by result of summarizing  $min=32$ ,  $max=75$ ), by *DA* - 156 ( $min=40$ ,  $max=137$ ), *Envr* - 157 ( $min=40$ ,  $max=150$ ), *SP* - 104 ( $min=43$ ,  $max=77$ ), *CD* - 66 ( $min=21$ ,  $max=55$ ), *SA* - 60 ( $min=15$ ,  $max=55$ ), that corresponds maximal expression of social exclusion of each component.

Further, to provide the opportunity of comparative analysis we formed summary indexes by each component and transformed them into 10-point scales, calculate summary indexes of Situation (*SitExclInd*) and Condition (*CondExclInd*) of exclusion of respondents; in total, their summary values composed General Index of Social Exclusion (*GenExclInd*) of population of the elderly and senile age in three regions of the Russian Federation, further transformed into 10-point scale. Transformation of indexes into 10-point scale realized with taking into consideration the accepted regulations about return of fractional numbers, i.e. 0–0,49 points equaled to 0 points, 0,5–,49 – to 1 point and so on. Programs IBM SPSS 23.0 and MS Excel were used for statistical possession and visualization of results.

## Results and discussion

Index of situation of social exclusion consisted of summary indexes of normalized indexes of three components – *MD*, *DA*, and *Envr*. By the first component, 83.3% of persons of the elderly age have index in the range of 0–0,49 points, i.e. in this group of non-excluded respondents there are no any deprivation of economic behavior. In result, in the group of materially deprived respondents of the elderly and senile age the *MD* index (*MDInd*) vary between 4 and 9 points, herewith 4 points described 0.4% of the elderly population, 5 – 2.4%, 6 – 4.9%, 7 – 3.5%, 9 – 1.4%.

A non-zero value of the *DA* index (*DAInd*) fixed for 36.55% of the elderly persons – it varies between 3 and 9 points, the largest group by the *DA* (15.3%) it equals 6 points.

The *Envr* index (*EnvrInd*) is in range of 3 – 10 point for 42.5% of the elderly. Thus, almost ½ of research participants are deprived from safe environment. It is the only component of social exclusion with maximal value of 10 points for 0.4 % of respondents, and for 11.2 % of the elderly population the exclusion in the sphere of safe environment is expressed at the level of 8 points. In result, the summary index of situation of social exclusion (*SitExclInd*) of population of the elderly age in three Russian regions is distributed in the range 1 – 8 points, it higher than 1 point for more than a half of respondents – 60.3%. Hence, the situation of social exclusion is highly expressed for the most part of respondents: 4 % are described by the summary index of 6 points, 0.5 % – 7 points. The mean value of the situation of social exclusion index is at the level of 5 point, 8.2 % with 4 points, 5.8 % with 3 points, 27.9 % with 2 points, and 3.2 % with 1 point are lower than the mean value.

The condition of social exclusion index (*CondExclInd*), according to the suggested conceptual model, described by values of indexes of deprivation of social participation (*SPInd*), cultural (normative) disintegration (*CDInd*), and social autism (*SAInd*). We note the distribution of indexes towards higher concentration and evident asymmetry towards higher values testifies about relation between indexes of condition of social exclusion, unlike the indexes of situation of social exclusion.

Non-zero values of the *SP* index (*SPInd*) fixed among 15 % of people of the elderly age, and the values are rather high – 4 – 7 points. Concluding, the exclusion of an individual from the system of social networks has multidimensional character, the alienation from a number of ties – family, friendship, relative, and neighbor and so on – occurs. Hence, 0.6% of respondents have *SPInd* at 4 points, 6.4% – 5 points, 5.8% – 6 points, and 0.6% – 7 points.

The *CD* became the most expressed – 72.8% of respondents are culturally deprived with the *CDInd* at the level of 3 – 8 points. Herewith, the majority of excluded respondents have highly expressed *CD*: for 31.3 % the index consisted 6 points, for 16.2% – 7 points, for 1.8% – 8 points.

41.8% of the elderly and senile age persons have the *SA* index (*SAInd*), varying between 5 and 0 points: for 0.4 % of respondents it expressed at the level of 9 points, 1% – 8 points, 5.6% – 7 points, 11.6% – 6 points, the mean value at the level of 5 points describes 15.4% of the elderly age persons.

By results of the construction of the summary index of situation of social exclusion (*CondExclInd*) we concluded, that the largest part of respondents are in the situation of social exclusion (79.2%), expressed at the level of 1 – 7 points. Considerable part of the elderly age persons have value of the *CondExclInd* of 2 points, 0.5% of respondents 0 at the level of 7 points, 4% – 6 points, 7.6% – 5 points, for other groups the *CondExclInd* is lower.

We shall now proceed to consider the General Index of Social Exclusion (*GenExclInd*) of the elderly age persons in the Altai krai, the Transbaikal krai and the Kemerovo oblast.



In all three regions, the majority of the elderly people are vulnerable to the exclusion in several extent (86.4 %), social exclusion of the elderly is weakly and averagely expressed, in whole. Hence, 1/5 part of the elderly population (21.1%) has the *GenExclInd* in range of 0.5 – 1.49 points, almost the same part of the elderly (20.2%) are in the range of 1.5 – 2.49 points, 17.2% are excluded at the level of 3 points, 13.9% – 4 points. In three regions, 8.1 % of the elderly have the *GenExclInd* at the level of 4.50 – 5.49 points. Socially excluded at the level higher than average are 3.6% of the elderly with the *GenExclInd* value about 6 points and 0.6 5 – 7 points.

Thus, the maximal valued of the *GenExclInd* for the elderly and senile population in three regions was 7 points (index values from 6.50 to 7.49 points). Table 1 presents the distribution of calculated index values.

Table 1

Distribution of index values of social exclusion of the elderly age persons, %

| Index value   | <i>MDInd</i> | <i>DAInd</i> | <i>EnvrInd</i> | <i>SPInd</i> | <i>CDInd</i> | <i>SAInd</i> | <i>SitEx-clInd</i> | <i>Con-dEx-clInd</i> | <i>GenEx-clInd</i> |
|---------------|--------------|--------------|----------------|--------------|--------------|--------------|--------------------|----------------------|--------------------|
| 0–0,49 (0)    | 83,1         | 63,5         | 57,5           | 85,0         | 27,2         | 58,2         | 39,7               | 20,8                 | 15,4               |
| 0,50–1,49 (1) | –            | –            | –              | –            | –            | –            | 3,2                | 1,7                  | 21,1               |
| 1,50–2,49 (2) | –            | –            | –              | –            | –            | –            | 27,9               | 35,8                 | 20,2               |
| 2,50–3,49 (3) | –            | 0,6          | 0,5            | –            | 0,1          | 0,5          | 5,8                | 9,8                  | 17,2               |
| 3,50–4,49 (4) | 0,4          | 4,4          | 2,4            | 0,6          | 2,7          | 7,3          | 8,2                | 19,9                 | 13,9               |
| 4,50–5,49 (5) | 2,4          | 8,2          | 10,7           | 6,4          | 20,7         | 15,4         | 8,3                | 7,6                  | 8,1                |
| 5,50–6,49 (6) | 4,9          | 15,3         | 10,8           | 5,8          | 31,3         | 11,6         | 2,7                | 4,0                  | 3,6                |
| 6,50–7,49 (7) | 4,4          | 6,3          | 0,6            | 2,2          | 16,2         | 5,6          | 3,2                | 0,5                  | 0,6                |
| 7,50–8,49 (8) | 3,5          | 1,5          | 11,2           | –            | 1,8          | 1,0          | 1,0                | –                    | –                  |
| 8,50–9,49 (9) | 1,4          | 0,1          | 5,8            | –            | –            | 0,4          | –                  | –                    | –                  |
| 9,49–10 (10)  | –            | –            | 0,4            | –            | –            | –            | –                  | –                    | –                  |

*Note.* Maximal value corresponds to maximal exclusion. Here and further in table 2: maximal mean values are in the bold; values of indexes of situation and condition of social exclusion are in italics; *MDInd* – the index of social-economic (material) deprivation; *DAInd* – the index of deprivation of social rights; *EnvrInd* – the index of deprivation of security; *SPInd* – the index of deprivation of social participation; *CDInd* – the index of cultural (normative) disintegration; *SAInd* – the index of social autism; *SitExclInd* – the summary index of situation of social exclusion of respondents; *CondExclInd* – the summary index of condition of social exclusion of respondents; *GenExclInd* – the general index of social exclusion of population.

To consider regional differences in distribution of indexes of components of social exclusion we realized comparative analysis of the mean values of the indexes (*table 2*). According to the table 2, there are no any considerable differences between the expressions of components of social exclusion. Hence, the most excluded are people of the elderly age in the Kemerovo oblast with the mean values of social exclusion by all components, and summary indexes of situation and condition of exclusion are higher. The only component is highly expressed in the Transbaikal krai, but not in the Kemerovo oblast, - deprivation of social rights *DA* (the mean value is 2.15 points in the Transbaikal krai, in the Kemerovo oblast – 2.10 points, and in the Altai region – 2.05 points).

Herewith, the elderly age persons in the Altai krai have similar level as of condition (1.9885), as situation (1.9237) of social exclusion, in the Kemerovo oblast and the Transbaikal krai the condition of social exclusion is highly expressed:  $\mu\text{SitExclInd} = 1.7588$  and  $\mu\text{CondExclInd} = 2.3385$  in the Transbaikal krai and  $\mu\text{SitExclInd} = 2.2462$  and  $\mu\text{CondExclInd} = 3.1000$  in the Kemerovo oblast. Hence, in the Kemerovo oblast  $\mu\text{GenExclInd} = 2.8115$ , in the Transbaikal krai  $\mu\text{GenExclInd} = 2.1595$ , in the Altai krai  $\mu\text{GenExclInd} = 2.0763$  ( $\mu$  – mean value).

Table 2

Mean values of the indexes of social exclusion  
of the elderly age groups in regional comparisons

| Region              |                    | MDInd   | DAInd   | EnvrInd | SPInd   | CDInd   | SAInd   | SitEx-clInd | CondEx-clInd | GenEx-clInd |
|---------------------|--------------------|---------|---------|---------|---------|---------|---------|-------------|--------------|-------------|
| The Altai krai      | Mean               | 1,0000  | 2,0458  | 2,6660  | 0,7214  | 3,2939  | 1,9771  | 1,9237      | 1,9885       | 2,0763      |
|                     | N                  | 262     | 262     | 262     | 262     | 262     | 262     | 262         | 262          | 262         |
|                     | Standard deviation | 2,32264 | 2,84292 | 3,17920 | 1,86381 | 2,91933 | 2,67374 | 2,01001     | 1,72536      | 1,75782     |
| The Trasbaikal krai | Mean               | 0,8872  | 2,1479  | 2,2159  | 0,7121  | 4,0000  | 2,2451  | 1,7588      | 2,3385       | 2,1595      |
|                     | N                  | 257     | 257     | 257     | 257     | 257     | 257     | 257         | 257          | 257         |
|                     | Standard deviation | 2,20416 | 2,85481 | 2,94960 | 1,87572 | 2,87228 | 2,75678 | 1,87609     | 1,72476      | 1,55179     |



| Region       | The Kemerovo oblast |     |        | Total              |     |        |
|--------------|---------------------|-----|--------|--------------------|-----|--------|
|              | Standard deviation  | N   | Mean   | Standard deviation | N   | Mean   |
| MDInd        | 3,07610             | 260 | 1,5308 | 2,57628            | 779 | 1,1399 |
| DAInd        | 2,84923             | 260 | 2,0962 | 2,84559            | 779 | 2,0963 |
| EnvrInd      | 3,30067             | 260 | 2,9903 | 3,15924            | 779 | 2,6258 |
| SPInd        | 2,31846             | 260 | 1,1038 | 2,03615            | 779 | ,8460  |
| CDInd        | 1,69688             | 260 | 5,6115 | 2,73455            | 779 | 4,3004 |
| SAInd        | 2,89358             | 260 | 2,6308 | 2,78545            | 779 | 2,2837 |
| SitEx-clInd  | 2,33179             | 260 | 2,2462 | 2,08914            | 779 | 1,9769 |
| CondEx-clInd | 1,52381             | 260 | 3,1000 | 1,72247            | 779 | 2,4750 |
| GenEx-clInd  | 1,69915             | 260 | 2,8115 | 1,70250            | 779 | 2,3492 |

*Note.* Maximal value corresponds to maximal exclusion.

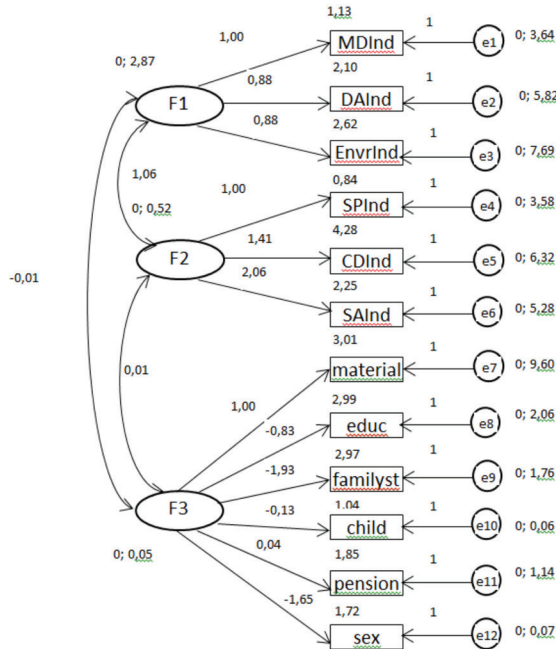
### Identification of posterior model of social exclusion

To test the correlation between theoretical and empirical models of exclusion we used the method of structural equation modeling (SEM) [9], based on confirmatory approach. The model was tested with help of quality confirmation tests in the SEM to reveal the extent of coherence between patterns of dispersion and covariations in initial data with the structural (path) model, specified by researches. During the modelling and model testing, we used the AMOS module (Analysis of Moment Structures) version 22.0.0 for the IBM SPSS.

To construct the structural model we used three latent unobserved variables: F1 describes situation of social exclusion, F2 – condition of exclusion, F3 – risk of social exclusion. Basing on previous analysis, we supposed situation of exclusion as combining indexes of MD, DA and Envr, and condition of exclusion – indexes of SP, CD and SA. Indexes of latent variable F3 were sex, evaluation of material condition, educational level, family status, presence of children, and pension amount.

In a result of the modeling, we tested the obtained null model (picture) for confirmation. Results of testing demonstrated confirmation between theoretical and empirical models: the model value  $\chi^2$  is not significant with  $p < 0,0001$  and  $CMIN/DF \leq 4$  ( $CMIN/DF$  – the  $\chi^2$  value, divided the number of degrees of flexibility in the model; the criteria shows the adequacy of the  $\chi^2$  value for the model; optimal value of  $CMIN/DF$  varies from

1 to 3 points); the sampling is adequate for testing of the model (HOELTER, n=327), RMSEA (Root mean square error of approximation)  $\leq 0,05$ , corresponds with researches by L. Hu and P. M. Bentler [14].



Structural model of social exclusion of the elderly age persons.

MDInd – the index of social-economic (material) deprivation; DAInd – the index of deprivation of social rights; EnvrlInd – the index of deprivation of security; SPInd – the index of deprivation of social participation; CDInd – the index of cultural (normative) disintegration; SAInd – the index of social autism; F1 – situation of exclusion; F2 – condition of exclusion; F3 – risk of social exclusion; e1,2,3,4,5,6,7,8,9 – errors of endogen (dependent) variables; material – evaluation of material condition; educ – educational level; familyst – family status; child – presence of children; pension – pension amount; sex – sex.

## Conclusion

Thus, indexes, determined at the stage of theoretical modelling, really determine the probability of social exclusion in the empirical model; characterize condition, situation and risk of social exclusion of the elderly age persons, living at the territory of the Siberian Federal District of the Russian Federation.

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