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SEXTING TYPES AND MOTIVES DETECTED AMONG SLOVAK ADOLESCENTS[**]

The present study maps different types of adolescent sexting in the Slovak Republic, i.e. primary and secondary sexting, as well as self- and peer-sexting. Our research has been focused on the investigation and comparison of motives that make the adolescents of different ages and genders decide for voluntary, forced, primary, secondary, self- or peer-sexting. The research sample included 790 Slovak adolescents aged 12–18, of which 376 were boys (47.6%) and 414 were girls (52.4%). The gender-based comparison provided us with statistically significant differences in pursuing various types of sexting. The most frequent form of sexting is peer-sexting. In terms of motivation, the research shows that most adolescents use individual sexting forms to seek attention or entertain themselves. Secondary sexting (as the most dangerous form of this behavior) is most often driven by entertainment, retaliation, revenge and jealousy. All these motives were also statistically more significant for male respondents.

Keywords: adolescents; peer-sexting; primary sexting; secondary sexting; self-sexting

1. Theoretical framework

As the availability of modern technologies grows with the Internet access, sexting has spread and become more popular among adolescents. The term itself first appeared in 2005 and referred to the behavior of sending sexually explicit messages and photos, usually through mobile devices. It is the social trend that raises concerns for teenagers, young adults, parents, teachers, legislators and lawmakers. However, Döring (2014) stresses that not all photos and videos exposing sexual content can be automatically considered sexting products. Free download of the sexually explicit photos and videos from the Internet does not represent sexting. Sexting actors have to take photos of themselves and send the material to the other user via computer, tablet or cell phone (Döring 2014). The sexting process can to a great extent depend on stimuli from the

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social environment. It means that the perception of peers and cultural norms is a determinant factor. Adolescents want to express themselves in a manner that would draw the attention of their peers and raise their social status. That should satisfy the inherent needs for affection, sympathy, and self-affirmation (HINDUJA & PATCHIN 2012).

Experts differentiate between several types of sexting. Over the past decade, the professionals have been discussing primary and secondary sexting (CALVERT 2009). Primary sexting refers to the exchange of sexual content between minors. Secondary sexting occurs if the material is shared or forwarded beyond the intended recipient. CALVERT (2013) recognizes primary and secondary sexting and adds another form that leads to revenge, retaliation, and humiliation. This kind of sexting form most often occurs after couples break up. Primary sexting tends to be consensual. Secondary sexting, on the other hand, typically becomes aggravated; i.e. harmful online behavior (VAN OUYTSEL et al. 2014).

Sexting can be further divided into experimental and aggravated sexting (WOLAK & FINKELHOR 2011). Experimental sexting includes romantic, sexual, and 'the other' form of sexting. Romantic and sexual sexting is preferred by adolescents who want to attract the attention of another person and experience online intimacy. 'The other' form of sexting occurs if the sext is created but not sent. Aggravated sexting distinguishes between the 'involvement of adults' and the 'involvement of youth'. Both involvements represent the incidents of aggravated sexual behavior that could lead to a dramatic increase of potential risks and threats. The authors claim that the intention of the youth involvement is to harm, abuse, or take revenge. Such situations happen when the sexters share a sext without permission. We might state that experimental sexting, as explained by WOLAK and FINKELHOR (2011), seems to be less harmful than aggravated sexting. The latter becomes more intense as the sexters increasingly harass the victims. HUDSON (2011) proposes four types of sexting: consensual or 'agreed' sexting (with both parties willing to sext), sex-bullying (used to harass and abuse the others), illegal sexting (between minors or between minors and adults) and at-risk sexting (resulting in multiple negative consequences, such as victimization, humiliation, educational issues, psychosomatic disorders, etc.).

Researchers VAN DER HOF and KOOPS (2011) explain self- and peer-sexting as circulating sexts among peers who wish to express themselves. As our research is focused on self- and peer-sexting motives of Slovak adolescents, we need to set out these phenomena in more details. Researchers define self-sexting as submitting photos of the naked self (ENGLANDER 2012), private exchange of self-exposing sexually explicit images (DÖRING 2014), sharing or showing one's own nude or half-naked photos (EUGENE 2015), and sending self-created sexually explicit images of minors (KROTOSZYNSKI et al. 2018). Specialized literature identifies peer-sexting as exchanging text and visual messages among peers by means of different digital devices having Internet access (LIVINGSTONE & GÖRZIG 2014). Creating and circulating sexually suggestive images among peers is also referred to as 'peer to peer sexting' (KROTOSZYNSKI et al. 2018). Sexting itself is not restricted to adolescents. We might also encounter adult sexting; i.e. sexual behavior pursued by adults.

The authors propose various motives for sending sexually explicit photos. Young people have several reasons for sexting. They might feel proud of their bodies or desire to attract someone. Mutual trust often makes them compensate for their friends' visual messages and send self-exposing photos in the belief that *'it is safe'*.

Other motives include flirting and seeking the attention of potential partners (HENDERSON 2011; ENGLANDER 2012), initiating sexual activities (TEMPLE & CHOI 2014), stimulating intimacy between partners (KLETTKE et al. 2014), complementing romantic relationships, seeking distraction, reacting to social pressure and consumer society or taking revenge (KOPECKY et al. 2015).

The research results by D. HALDER and K. JAISHANKAR (2009) prove that sexting is deemed to provide entertainment and distraction on social networks. Intimate materials (either photos or videos) distributed to the adolescents and adults might be used for revenge and retaliation. Revenge can take different forms – from blackmailing and bullying to child pornography.

Researchers BIANCHI and colleagues (2016) examined 509 respondents aged 13–35 to discover various motives for sexting behavior. The data was collected through the Sexting Motivations Questionnaire (SMQ) evaluating three scales of sexting motivation: sexual purposes, body image reinforcement, and instrumental/aggravated purposes. The most frequent sexting motivation for adolescents and young adults was found on the scale of sexual purposes (88%, n = 448) followed by the scale of body image reinforcement (57.4%, n = 292). The values of sexting as an abusive instrument are low, yet rather alarming (13.5%, n = 69).

One of the latest researches of sexting and at-risk online dating indicates that the most prevalent reason for adolescent sexting refers to seeking attention in the online environment (62.87% of girls and 52.89% of boys). Flirting with the person the adolescents liked motivated 61.09% of female respondents and 50.16% of male respondents to sext. The desire of having a boyfriend or girlfriend motivated 45.92% of the female and 49.96% of the male respondents, and the idea of surprising the boyfriend or girlfriend motivated 43.40% of the girls and 38.15% of the boys. Adolescents decided to sext for another set of reasons – to receive compliments, to grant the wish of their partners, to get entertained or distracted, and as a result of coercion (KOPECKY& SZOTKOWSKI 2017).

2. Methodology

2.1 Research goal

Our research has been focused on the investigation and comparison of motives that make the adolescents of different age and gender pursue voluntary, forced, primary, secondary, and self- or peer-sexting.

The research tasks included:

Task 1: Mapping the occurrence of individual sexting types among Slovak adolescents of different age and gender.

Task 2: Mapping the motives for individual sexting types among Slovak adolescents of different age and gender.

2.2 Research sample

The research sample involved 790 Slovak adolescents and pubescents aged 12–18, of which 376 were boys (47.6%) and 414 were girls (52.4%). The participants were represented by 489 elementary school students (62%) and 301 high school students (38%). After having received the consent of schools and parents to inquire into their students and children, we proceeded with the available academic selection. Students who refused to take further part in the research or filled the questionnaire incompletely were excluded from the examination. Based on the available selection, the research engaged 19 schools from the whole of Slovakia. The available academic selection was supposed to involve 24 schools. Given that Slovakia is divided into eight regions, our initial intention was to select three schools from each region. Five schools, however, refused to take part in the examination, as neither the headmasters nor the parents agreed to the children's participation in the research. Schools were selected according to their type (i.e. state, private or religious schools) and location in the specific regions. The results based on the type of school are not stated here. As five schools had refused to participate in our research, the school distribution became uneven. The results were assessed with several research criteria, including age, gender, and variables stated in the objectives. Based on the age and gender criteria, the educators and teachers followed specific instructions to address and divide the respondents into approximately uniform age and gender groups. The students' engagement in our research required the informed consent from their parents. When finished, the respondents were asked to put the sealed envelope with the anonymous questionnaire into collection boxes. The initial number of received questionnaires was reduced by 45 copies due to incomplete data.

2.3 Research methods

For our purposes, we used the constructed *Sexting and its motives* questionnaire. This research instrument is based on the original *Cyberbullying and Online Aggression* questionnaire (HINDUJA & PATCHIN 2012) and modified to meet our requirements (HOLLA 2017). Our questionnaire was anonymous and delivered to the respondents in a printed form. The instructions on how to fill it were given to the respondents by the members of the research team or the informed person (class teacher, guidance counselor, or prevention coordinator). The overall questionnaire administration took approximately 35 minutes. The respondents needed no intervention after the completion. The schools were given the contact details of the researchers, counseling centers

and non-profit organizations, that could provide them with further pedagogical, psychological, and socio-legal aid or support. These contact details were also put on the information boards available for all students including those who had not participated in the research. Yet the researchers were not asked to provide further intervention.

The reliability of this modified research instrument was measured through Cronbach's Alpha. Scale-level Cronbach's Alpha reached α = 0.953. Item-level Cronbach's Alpha values ranged from α = 0.527 to α = 0.861 (HOLLA 2017). In 2019, the 'sexting' scale from the modified questionnaire was used and complemented with motivation-oriented items. The above-mentioned *Sexting and its motives* questionnaire included 38 items – 16 items oriented towards sexting (sending and receiving sexts) and 22 items oriented towards self- and peer-sexting motivation. Scale-level Cronbach's Alpha reached the value of α = 0.953.

With regard to the research goal and tasks, the results were processed via a non-parametric Mann–Whitney U-test and one-factor analysis of variance (ANOVA).

2.4 Research results

2.4.1 Adolescent sexting types based on gender and age

We investigated Slovak adolescents and researched the incidence of selected sexting types, as well as the motivation to pursue such behavior in Slovak Republic. We paid attention to primary and secondary sexting, self- and peer-sexting, etc. As the individual sexting types are all closely-related, the conceptual definition of each type was needed. When studying primary sexting, we explored the act of sending sexts between friends and classmates without forwarding it to third parties. Self-sexting represented sharing self-exposing naked photos online; e.g. posting sexually suggestive photos and videos on social networks. Peer-sexting related to the exchange of sexts between friends and classmates. Increased attention was being paid to secondary sexting that can be regarded as the most at-risk type of sexting. Secondary sexting encompasses the act of forwarding sexts to the third parties.

The statistical analysis via the Mann–Whitney U-test (*Table 1*) showed no significant difference between male and female respondents in the primary sexting pursuit rate (U = 75,505.000; p = 0.272) and the self-sexting pursuit rate (U = 75,540.000; p = 0.054). Quite the opposite: a statistically significant gender-based difference was observed between peer-sexting pursuit rate and secondary sexting pursuit rate. Compared to girls, peer-sexting is more frequent with boys who tend to send the photos of their classmates (U = 73,399.000; p = 0.021) and friends (U = 73,435.000; p = 0.032). Secondary sexting is also more common for male respondents who admit forwarding sexually suggestive photos to third parties (U = 72,831.000; p = 0.005).

Table 1
Adolescent sexting types based on gender

Sexting types	Gender	N	M	SD	df	U	p
Primary sexting	B	376	1.41	0.967			
	G	414	1.31	0.798	788	75,505.000	0.272
Self-sexting	B	376	1.10	0.485			
	G	414	1.05	0.341	788	75,540.000	0.054
Peer-sexting:sexting among classmates	B	376	1.34	0.927			
	G	414	1.17	0.587	788	73,399.000	**0.021**
Peer-sexting:sexting among friends	B	376	1.40	0.930			
	G	414	1.28	0.791	788	73,435.000	**0.032**
Secondary sexting:	B	376	1.28	0.794			
	G	414	1.14	0.555	788	72,831.000	**0.005**

B – boys; G – girls; N – number; M – mean; SD – standard deviation; SEM – standard error of mean; df – degrees of freedom; U – Mann-Whitney U-test; p – statistical significance level.

We proceeded with the age-oriented examination of sexting types *(Table 2)*. The statistical breakdown via one-factor analysis of variance showed a significant difference in primary sexting pursuit rate (F = 14.891; p = 0.0000) based on age and the significance level of 0.05. Juveniles aged 16–18 are more inclined to primary sexting than younger adolescents. A statistically significant age-based difference is also observed for self-sexting; i.e. posting self-exposing intimate photos on the Internet (F = 2.180; p = 0.043). Compared to younger respondents, the rate of posting intimate photos is higher for 15-year-old juveniles. Students aged 15–18 decide for peer-sexting more often than younger pubescents and share sexts with classmates (F = 2.222; p = 0.039) or friends (F = 6.131; p = 0.000). It is interesting to note that no significant age-based difference exists in the secondary sexting involvement rate (F = 1.505; p = 0.174).

Table 2
Adolescent sexting types based on age

Sexting types	Age	N	M	SD	SEM	df	F	p
Primary sexting	12	166	1.11	0.528	0.041			
	13	120	1.18	0.594	0.054			
	14	110	1.17	0.662	0.063			
	15	131	1.24	0.793	0.069	6	14.891	**0.000**
	16	106	1.75	1.122	0.109			
	17	103	1.58	1.015	0.100			
	18	54	2.00	1.360	0.185			
Self-sexting	12	166	1.04	0.267	0.021			
	13	120	1.01	0.159	0.014			
	14	110	1.09	0.460	0.044			
	15	131	1.18	0.696	0.061	6	2.180	**0.043**
	16	106	1.07	0.285	0.028			
	17	103	1.06	0.366	0.036			
	18	54	1.11	0.462	0.063			
Peer-sexting: sexting among classmates	12	166	1.11	0.572	0.044			
	13	120	1.23	0.764	0.070			
	14	110	1.18	0.623	0.059			
	15	131	1.30	0.917	0.080	6	2.222	**0.039**
	16	106	1.40	0.902	0.088			
	17	103	1.28	0.720	0.071			
	18	54	1.41	0.962	0.131			
Peer-sexting: sexting among friends	12	166	1.10	0.462	0.036			
	13	120	1.24	0.810	0.074			
	14	110	1.16	0.567	0.054			
	15	131	1.54	1.040	0.091	6	6.131	**0.000**
	16	106	1.56	1.015	0.099			
	17	103	1.44	1.007	0.099			
	18	54	1.48	1.059	0.144			
Secondary sexting: forwarding someone's naked photo to the third party	12	166	1.11	0.509	0.040			
	13	120	1.12	0.553	0.050			
	14	110	1.23	0.774	0.074			
	15	131	1.27	0.763	0.067	6	1.505	0.174
	16	106	1.30	0.745	0.072			
	17	103	1.26	0.754	0.074			
	18	54	1.20	0.711	0.097			

N – number; M – mean; SD – standard deviation; SEM – standard error of mean; df – degrees of freedom;
F – ANOVA; p – statistical significance level.

2.4.2 Motives for different types of sexting based on gender and age

When investigating what makes the adolescents choose different sexting motives, we reused the statistical comparative analyses via the Mann–Whitney U-test and one-factor analysis of variance. First, we compared the respondents' motives for individual types of adolescent sexting on the gender level (*Table 3*) and subsequently on the age level (*Table 4*). Sexting is an integral part of young people's digital world. A great number of contemporary pedagogical, psychological, and sociological experts strive to understand the reasons that motivate adolescents to engage in sexting. In terms of targeted prevention and intervention associated with the current generation, it is crucial to recognize and understand these motives.

First, we directed our attention to the motives that make adolescents choose primary sexting. The idea of attracting someone moved male and female respondents equally ($U = 76,917.500$; $p = 0.623$). The same tendencies were observed regarding the need of entertainment ($U = 74,127.500$; $p = 0.071$). Significant gender-based differences occurred regarding the motives of seeking attention ($U = 73,512.500$; $p = 0.010$), building relationships $U = 72,270.000$; $p = 0.001$), and flirting ($U = 71,935.500$; $p = 0.002$). It turned out that the above motives were prevalent with boys.

In case of secondary sexting that implies the forwarding of sexts to third parties, there were no significant gender-based differences for the motives of black-mailing and mocking. Secondary sexting is statistically more frequent with male adolescents who do it out of jealousy ($U = 75,110.500$; $p = 0.050$), retaliation or revenge ($U = 74,366.000$; $p = 0.030$), and entertainment ($U = 72,408.000$; $p = 0.005$).

Statistically significant peer-sexting motivations include entertainment ($U = 73,125.500$; $p = 0.009$), retaliation or revenge ($U = 74,366.000$; $p = 0.004$), curiosity ($U = 71,724.000$; $p = 0.000$), bets among friends ($U = 72,808.500$; $p = 0.000$) and sexual satisfaction ($U = 73,023.000$; $p = 0.001$). When compared to girls, the incidence of all these motives was higher for male participants.

Table 3
Motives for sexting based on gender

Type/Variable	Gender	N	M	SD	df	U	p
Primary sexting:							
attracting someone	B	376	1.28	0.846	788	76,917.500	0.623
	G	414	1.23	0.714			
seeking attention	B	376	1.26	0.801	788	73,512.500	**0.010**
	G	414	1.14	0.562			
building relationships	B	376	1.30	0.866	788	72,270.000	**0.001**
	G	414	1.12	0.532			
flirting	B	376	1.37	0.951	788	71,935.500	**0.002**
	G	414	1.18	0.607			
entertainment	B	376	1.43	1.076	788	74,127.500	0.071
	G	414	1.23	0.700			
Secondary sexting:							
blackmailing	B	376	1.12	0.632	788	76,155.000	0.120
	G	414	1.02	0.183			
mocking	B	376	1.16	0.657	788	75,729.000	0.153
	G	414	1.10	0.467			
jealousy	B	376	1.20	0.771	788	75,110.500	**0.050**
	G	414	1.08	0.438			
retaliation or revenge	B	376	1.23	0.752	788	74,366.000	**0.030**
	G	414	1.12	0.514			
entertainment	B	376	1.45	1.092	788	72,408.000	**0.005**
	G	414	1.24	0.780			
Peer-sexting:							
entertainment	B	376	1.34	0.942	788	73,125.500	**0.009**
	G	414	1.18	0.678			
retaliation or revenge	B	376	1.11	0.499	788	74,361.500	**0.004**
	G	414	1.04	0.272			
curiosity	B	376	1.33	0.914	788	71,724.000	**0.000**
	G	414	1.12	0.564			
bets among friends	B	376	1.22	0.731	788	72,808.500	**0.000**
	G	414	1.07	0.436			
sexual satisfaction	B	376	1.28	0.912	788	73,023.000	**0.001**
	G	414	1.09	0.459			

B – boys; G – girls; N – number; M – mean; SD – standard deviation; SEM – standard error of mean;
df – degrees of freedom; U – Mann-Whitney U test; p – statistical significance level.

As the gender-based comparison of self-sexting motives did not provide us with statistically significant differences, we decided not to state these results.

The gender-based analysis of the motivation for different types of adolescent sexting was followed by an age-oriented analysis. Compared to younger pubescents, the primary sexting motive of attracting someone was statistically more frequent with the 18-year-old adolescents (M = 1.46, F = 4.969, p = 0.000). The motive of attracting someone reflects the need to impress the other person. Aging increases this need to impress or attract someone. Therefore, as the adolescents grow older, the likelihood of being moved by this motive when pursuing primary sexting is growing higher. Interestingly, the motive of attracting someone was most notable in the case of 15-year-old adolescents (M = 1.33, F = 2.834, p = 0.010). The primary sexting motive of building relationships was predominant with adolescents aged 16 (M = 1.35) and 18 (M = 1.37, F = 3.508, p = 0.002). Similar tendencies applied to the motives of flirting (M = 1.48, F = 4.150, p = 0.000) and entertainment (M = 1.69, F = 5.166, p = 0.000). The latter was most notable for 18-year-old adolescents. As the age increases, the incidence of these primary sexting motives is growing higher, as well.

For secondary sexting, we analyzed the motives of blackmailing, mocking, jealousy, retaliation or revenge and entertainment. The examination of blackmailing (F = 1.172, p = 0.319) and mocking (F = 0.990, p = 0.431) motives did not show a statistically significant correlation with age. Secondary sexting is statistically more significant for 15-year-old adolescents who do it out of jealousy (M = 1.29, F = 2.625, p = 0.016), retaliation or revenge (M = 1.37, F = 3.532, p = 0.002). Entertainment as one of the secondary sexting motives turned out to be statistically significant for the adolescents aged 16 (M = 1.68, F = 3.508, p = 0.002).

The exchange of photos has become an essential part of children's lives. For peer-sexting, we researched the motives of entertainment, retaliation or revenge, curiosity, bets among friends and sexual satisfaction. The statistical one-factor analysis of variance provided us with no significant age-based differences in the peer-sexting pursuit rate when comparing the motives of retaliation or revenge and sexual satisfaction. We can state that age has no significant role in peer-sexting if pursued out of retaliation or revenge and sexual satisfaction. According to the ANOVA analysis, statistically significant motives include entertainment, curiosity and bets among friends. Age-wise, the motives of entertainment (M = 1.48, F = 2.232, p = 0.038), curiosity (M = 1.47, F = 4.390, p = 0.000) and bets among friends (M = 1.27, F = 2.252, p = 0.037) were most notable for 16-year-old adolescents.

Table 4
Motives for sexting based on age

Variable	Research group	N	M	SD	SEM	df	F	p
Primary sexting								
attracting someone	12	166	1.09	0.478	0.037			
	13	120	1.08	0.401	0.037			
	14	110	1.16	0.698	0.067			
	15	131	1.39	0.957	0.084	6	4.969	0.000
	16	106	1.39	0.857	0.083			
	17	103	1.40	0.953	0.094			
	18	54	1.46	1.094	0.149			
seeking attention	12	166	1.08	0.426	0.033			
	13	120	1.10	0.438	0.040			
	14	110	1.15	0.744	0.071			
	15	131	1.33	0.854	0.075	6	2.834	0.010
	16	106	1.30	0.830	0.081			
	17	103	1.28	0.845	0.083			
	18	54	1.15	0.492	0.067			
building relationships	12	166	1.07	0.367	0.029			
	13	120	1.11	0.426	0.039			
	14	110	1.13	0.622	0.059			
	15	131	1.31	0.876	0.077	6	3.508	0.002
	16	106	1.35	0.817	0.079			
	17	103	1.28	0.954	0.094			
	18	54	1.37	0.917	0.125			
flirting	12	166	1.13	0.541	0.042			
	13	120	1.14	0.626	0.057			
	14	110	1.13	0.560	0.053			
	15	131	1.36	0.953	0.083	6	4.150	0.000
	16	106	1.43	0.884	0.086			
	17	103	1.39	1.002	0.099			
	18	54	1.48	0.986	0.134			
entertainment	12	166	1.17	0.722	0.056			
	13	120	1.14	0.626	0.057			
	14	110	1.23	0.786	0.075			
	15	131	1.30	0.883	0.077	6	5.166	0.000
	16	106	1.55	1.006	0.098			
	17	103	1.50	1.119	0.110			
	18	54	1.69	1.256	0.171			

Variable	Research group	N	M	SD	SEM	df	F	p
Secondary sexting:								
blackmailing	12	166	1.05	0.265	0.021			
	13	120	1.08	0.521	0.048			
	14	110	1.00	0.235	0.022			
	15	131	1.15	0.646	0.056	6	1.172	0.319
	16	106	1.09	0.508	0.049			
	17	103	1.05	0.405	0.040			
	18	54	1.07	0.544	0.074			
mocking	12	166	1.09	0.478	0.037			
	13	120	1.18	0.752	0.069			
	14	110	1.10	0.487	0.046			
	15	131	1.20	0.673	0.059	6	0.990	0.431
	16	106	1.14	0.542	0.053			
	17	103	1.13	0.537	0.053			
	18	54	1.02	0.136	0.019			
jealousy	12	166	1.04	0.318	0.025			
	13	120	1.09	0.550	0.050			
	14	110	1.06	0.455	0.043			
	15	131	1.29	0.890	0.078	6	2.625	0.016
	16	106	1.21	0.727	0.071			
	17	103	1.16	0.697	0.069			
	18	54	1.17	0.541	0.074			
retaliation or revenge	12	166	1.08	0.397	0.031			
	13	120	1.12	0.597	0.054			
	14	110	1.12	0.586	0.056			
	15	131	1.37	0.888	0.078	6	3.532	0.002
	16	106	1.25	0.778	0.076			
	17	103	1.09	0.373	0.037			
	18	54	1.22	0.744	0.101			
entertainment	12	166	1.11	0.544	0.042			
	13	120	1.29	0.956	0.087			
	14	110	1.27	0.887	0.085			
	15	131	1.38	1.041	0.091	6	4.394	0.000
	16	106	1.68	1.184	0.115			
	17	103	1.35	0.882	0.087			
	18	54	1.50	1.178	0.160			

Variable	Research group	N	M	SD	SEM	df	F	p
Peer-sexting:								
entertainment	12	166	1.16	0.635	0.049			
	13	120	1.20	0.763	0.070			
	14	110	1.17	0.776	0.074			
	15	131	1.25	0.778	0.068	6	2.232	0.038
	16	106	1.48	1.007	0.098			
	17	103	1.35	1.007	0.099			
	18	54	1.28	0.738	0.100			
retaliation or revenge	12	166	1.05	0.316	0.025			
	13	120	1.03	0.157	0.014			
	14	110	1.12	0.602	0.057			
	15	131	1.15	0.601	0.053	6	1.817	0.093
	16	106	1.06	0.333	0.032			
	17	103	1.02	0.139	0.014			
	18	54	1.07	0.264	0.036			
curiosity	12	166	1.07	0.448	0.035			
	13	120	1.07	0.361	0.033			
	14	110	1.20	0.810	0.077			
	15	131	1.27	0.793	0.069	6	4.390	0.000
	16	106	1.47	1.044	0.101			
	17	103	1.33	0.954	0.094			
	18	54	1.24	0.751	0.102			
bets among friends	12	166	1.08	0.388	0.030			
	13	120	1.03	0.257	0.023			
	14	110	1.15	0.693	0.066			
	15	131	1.21	0.744	0.065	6	2.252	0.037
	16	106	1.27	0.823	0.080			
	17	103	1.17	0.658	0.065			
	18	54	1.07	0.328	0.045			
sexual satisfaction	12	166	1.08	0.426	0.033			
	13	120	1.15	0.694	0.063			
	14	110	1.14	0.710	0.068			
	15	131	1.25	0.798	0.070	6	1.145	0.334
	16	106	1.24	0.763	0.074			
	17	103	1.23	0.866	0.085			
	18	54	1.24	0.867	0.118			

N – number; M – mean; SD – standard deviation; SEM – standard error of mean; df – degrees of freedom;
F – ANOVA; p – statistical significance level.

3. Discussion and conclusions

Adolescence might be an emotionally turbulent stage for both girls and boys. Adolescence is also a crucial stage to reconnoiter gender identity and sexual orientation. Adolescents explore their sexuality, desire to meet their peers and partners, and develop romantic relationships. Sharing or exchanging intimate photos, videos, and messages supports sexual exploration and experimentation. Specialized literature is in most cases concerned with the prevalence and negative impacts of adolescent sexting. There are a great number of sexting prevalence inquiries. However, little is researched about the adolescent sexting motives and forms. We might claim that the current research of adolescent sexting motivation is insufficient. Sexting is perceived as a part of romantic and sexual relationships as well as the desire of attracting a partner, flirting, and excitement. It plays a crucial role in developing relationships and shaping adolescents' attitudes towards sexuality. The research results showed that male respondents were more active regardless of the sexting type and motive. These findings are supported by other researches proving that boys are more involved in sexting, requesting photos from girls, importing such photos, as well as collecting and trading them (RINGROSE et al. 2012; HOLLA 2017; DOLEV-COHEN & RICON 2020). Girls, on the other hand, became resigned and passive (HOLLA 2017). From their point of view, providing photos is an accepted part of the current culture of sexism (RINGROSE et al. 2012). Girls are thus rather prone to succumb to the social and sociocultural pressure. As a result, this study aimed at exploring and comparing motives that engaged pubescents and adolescents in different sexting types. Within the sexting typology, we differentiated primary and secondary sexting and self- and peer sexting. Several specialists (CALVERT 2009; VAN OUYTSEL et al. 2014) define primary sexting as a consensual and private exchange of sexts between two individuals. In our research sample, we observed that 17.5% of adolescents were involved in primary sexting. The pursuit rate was equal for both male and female respondents and highest for the adolescents aged 16–18. Teenagers pursue primary sexting to attract someone and be entertained. With regard to the respondents' age , both motives dominated in the group of 18-year-old adolescents. Although gender-based differences in pursuing this kind of sexting are almost non-existent, it seems that boys are significantly more often involved in primary sexting to attract the other person, build relationships, and to flirt.

The research showed that the primary sexting motive of seeking attention was most prevalent with 15-, 16- and 17-year-old male respondents. This domination of boys who want to get the others' attention over girls is also pointed out by educators and psychologists. In the learning environments, boys tend to be rather loud and cause disruption to seek the attention of their peers. Such a motivation is even more intense should the class be heterogeneous, given that the boys' behavior is meant to impress the girls. Ontogenetic psychologists state that the sexual development of adolescents leads to several changes in relationships and thus affects their emotional perception of the real and virtual world alike.

Another sexting form – self-sexting – was pursued by 4.6% of adolescents. The occurrence rate was equal for both genders. It is worth noting the age of adolescents who post self-exposing photos. Such behavior was quite frequent with 15-year-old teenagers. Their motivation included the ideas of attracting someone and entertainment. It turned out that boys preferred self-sexting as the attempt and desire to attract someone, build relationships, and flirt. Self-sexting motivation depends on the age. As the adolescents grow older, the self-sexting rate increases, as well. The most notable motivation of pubescents at the age of 15 turned out to be the motive of seeking attention. Self-presentation and the process of shaping their sexuality are essential in adolescents' lives. Adolescents aged 16 and 18 were, first and foremost, moved by the motives of building relationships, flirting, and entertainment.

Individual quantitative and qualitative findings suggest that sexting reasons include flirtation and entertainment (ALBURY & CRAWFORD 2012; DROUIN et al. 2013), seeking attention of the other person (HENDERSON 2011), and attracting someone (KOPECKY 2011).

Peer-sexting as the exchange of sexts among peers, friends, and classmates is more typical for boys. This type of sexting was pursued by 29.2% of the research respondents. It is also the most widespread form of adolescent sexting in the Slovak Republic. Its most frequent form is sharing sexts among friends and classmates. These people are important companions on the journey to adulthood. Adolescents have different social relations with their friends and classmates who are supposed to understand and support them. This fact is highlighted by the peer-sexting motivation of the adolescents who are often moved by entertainment, retaliation or revenge, curiosity, bets among friends, and sexual satisfaction. The above-mentioned motives are again predominant with male respondents. Peer-sexting also results from the need for sexual satisfaction, youthful curiosity satisfaction, experimentation, distraction and entertainment. Rather negative motivation includes retaliation, revenge, and bets among friends. Other studies suggested that boys used sexting to achieve a higher status among peers and classmates (LEE & CROFTS 2015). Experts are thus challenged to 'take advantage' of this situation and develop proper educational programs for the adolescents that would raise awareness of online safety. Even if peer-sexting is the most widespread sexting form in the Slovak Republic, we cannot say that self- and primary sexing are entirely safe. In the current digital era, it is common to share our experiences and describe real-life situations in detail via photos on the social networks. Deleting the photo does not guarantee its complete and irreversible removal. Sharing photos and videos might spiral out of control very quickly. The person who posted them can never be sure who has downloaded the content. The recipient who decides to forward the primary sexter's photo is considered a secondary sexter. In the Slovak Republic, secondary sexting is pursued by 11.3% of adolescents. A gender-based analysis of forwarding sexts to the third parties again identified boys as more active. Secondary sexting is the most at-risk form, often provoked by a cruel and inappropriate desire for entertainment, humiliation, jealousy, retaliation or revenge and other undesirable reasons, such as coercion and blackmailing (HENDERSON 2011; ENGLANDER 2012).

A number of initial secondary sexting impulses might escalate and lead to the other related forms of deviant online behavior; e.g. cyberbullying, cyberstalking, etc. There are people who purposely search for intimate photos of adolescents and children. Their manipulative behavior helps them win favor with the others. If rejected, the aggressors can intimidate, blackmail, or force the adolescents to send them even more photos and videos. In spite of the criminal prosecution threats and media control, the rate of children's sexual abuse continues to increase (PATCHIN & HINDUJA 2020).

A moral panic associated with sexting takes place because the adults are not able to talk about sexuality. Families rather rely on schools. Schools, however, argue that imposing rules and limits on the media use and thus eliminating various online threats are the sole responsibilities of parents and families. As a result, nobody takes on this responsibility. Child protection in the online environment is a challenge for all supportive professions and institutions working with children. The Slovak Republic adopted the concept of child protection against the risks in digital space (*Koncepcia ochrany detí pred hrozbami v digitálnom priestore*), committing itself to take the necessary steps and coordinate the activities of the involved parties to eliminate negative online threats to children and adolescents. It is self-evident that society should set out specific rules and standards for the adolescents and children to follow.

4. Limitations of research

Our examination turned out to have several limitations. The exclusion of five schools due to the headmasters' or parents' disapproval made the distribution uneven and the number of participating schools was not the same in each region of Slovakia. In the eastern part of Slovakia, fewer schools agreed to take part in the research. In fact, the east of Slovakia is inhabited in greater numbers by Roma ethnic groups. The question remains how the lower number of schools from the given regions and fewer respondents from the marginalized group affected the research results. We also need to point out that the biased completion of the questionnaire could have another significant impact on the outcomes.

Our research was aimed at mapping selected sexting types and motives. It did not examine the relation of pedagogical, psychological, and sociological aspects to the motivation of sexting pursuit in more details. Such matters could be, however, the subject of another empirical research in this area.

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POLICY INITIATIVES ON HEALTHY AGEING IN RUSSIA FROM 2010–2020[**]

Background: A number of various policy strategies has been adopted in the last decade in response to population ageing in Russia. Governmental actions have yet to be evaluated in terms of their efficacy. By making a detailed overview of policy actions and relevant research, we are able to define successes and failures on the way to having a thriving and healthy older population.
Aims: To analyse policy initiatives targeting healthy ageing in terms of both the entire population and the individuals thereof, and provide the overview for the most recent years of 2010–2020.
Methods: The study has a theoretical nature. We undertake an analysis of available research literature and policy documents. In Section 2.2.1, we used a systematic literature review approach. Regarding the segment of the collection of literature discussed in the paper, a mixed approach was used retrieving online indexing services and additional searching in the Russian electronic library eLibrary.ru.
Results: Main demographic documents and primary structural changes focus on the population decline, ageing, retirement, and overall population health. Research on healthy and active ageing in the Russian academic literature, and elaboration of the new strategies and programs designed specifically for the benefit of older people and their health, have been discussed, with special attention given to the mental health of older people.
Conclusion: The initiatives mainly prioritise further increases in life expectancy, the quality of life of older persons, stimulating old-age productivity and active ageing. Many aspects require further improvement such as clear definitions, focused attention to geriatric care, better coordination of managing authorities, sustainable funding, and realistic expectations toward implementation indicators.

Keywords: healthy ageing; social policy strategies; demography structure; mental disorders; older population; Russian Federation

1. Introduction and methods

Novel concepts and policies have been introduced in the last decade to respond to population changes in the Russian Federation. Numerous changes have been recognised as a matter of national security and of the highest priority and importance for the life of people. The aim is 'to create the conditions for stimulating the birth rate, reducing mortality, pursuing a healthy way of life, and developing mass children's and youth sport, as well as organise the promotion of a healthy way of life' (The President Executive Order of 31.12.2015 № 683, 2015; our trans.)[1]. Although the new policies have already been adopted, governmental actions have yet to be evaluated in terms of efficacy, likely impact on population movement and distribution, and the pros and cons of suggested actions. A review of the Russian academic literature shows very few publications on the theme of healthy or active ageing (see more in Section 2.2.1).

In this paper, we aim to address the gap in analysing policy initiatives targeting societal and healthy population ageing and provide the overview for the most recent years, namely 2010–2020. Section 2.1 introduces the timeline, main demographic documents and primary structural changes associated with population decline, ageing, retirement, and overall population health. In Section 2.2, we discuss research on healthy and active ageing in the Russian academic literature and elaborate on the new strategies and programs created specifically for the benefit of older people and their health, special attention being given to the mental health and organizing geriatric help for older people. In conclusion, we summarise the discussion points and define data obstacles in analysing governmental policies on population matters in the Russian Federation.

To achieve this aim, we use the methods of descriptive approach, critical analysis of existing legislation and social welfare policy, as well as the analysis of documents and research articles. The study has a theoretical nature. We undertake an analysis of available research literature and policy documents. In Section 2.2.1, we used a systematic literature review approach.

2. Research results

2.1 Policy initiatives in demography

2.1.1 Timeline of major population related policy documents

There are a number of strategic actions and legislative acts that the government of the Russian Federation has implemented and enacted in the most recent decade. In the following subsections, we analyse new laws enacted with regard to the improvement of population size and growth (Section 2.1.2), on age structure (Section 2.1.3),

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[1]   Original text: 'Tsel- sozdat usloviya dlya stimulyatsii rozhdaemosti, umensheniya smertnosti, sledovanie zdorovomu obrazy zhizni, razvitie massovogo detskogo i yunosheskogo sporta, organizatsiya prodvizheniya zdorovogo obraza zhizni.'

and on health and mortality (Section 2.1.4). All of them have direct effects on population ageing manifestations. A number of recent documents allowed regulations on population movement, e.g. on spatial mobility, internal migration, new incentives to attract people to specific abandoned regions such as the High North, and citizenship-related procedures. We do not discuss these separately in this paper but acknowledge them as also having an effect on the country's demographic development. *Table 1* summarises major policy initiatives in the years 2007 to 2019.

Table 1

Timeline of larger population policy documents in the Russian Federation, 2007–2019

Year	Document
2007	* President Executive Order of 9.10.2007 №1351 "On the Approval of the Concept of Demographic Policy of the Russian Federation for the period up to 2025". It has its action plans, e.g. currently in force the Government Decree of 14.04.2016 №. 669-p. "On The Realization of Plan of Actions for the 3rd stage (2016-2020) of the Concept of Demographic Policy in the Russian Federation"
2009	* The Government Decree of 04.02.2009 № 132-p "Concept of sustainable development of indigenous northern peoples of the North, Siberia and the Far East of the Russian Federation"
2010	* The Government Decree of 25.10.2010 № 1873-p "On the basis of state policy in the sphere of healthy nutrition in the Russian Federation for the period up to 2020" * The Government Decree of 05.07.2010 №1120-p "Strategy of the socio-economic development of Siberia until 2020 * The Government Decree of November 30.11.2010 № 2136-p "The Concept of sustainable development of rural territories of the Russian Federation for the period up to 2020"
2011	* The Federal Law as of 21.11.2011 №323-FZ "On the fundamentals of health protection in the Russian Federation"
2012	* The Government Decree as of 6.02.2012 №98 "On the social grounds of abortion" * The Concept of the State Migration Policy, approved by the President of the Russian Federation dated June 8, 2012 № Pr-1490
2013	* "Russian Strategy of the Development of the Arctic Zone and the Provision of National Security for the period until 2020", approved by the President of the Russian Federation on February 8, 2013 No. Pr-232
2014	* The Government Decree as of 25.08.2014 №1618-p "On approving the Concept of state family policy in the Russian Federation for the period till 2025" * The Federal Law No. 172-FZ of June 28, 2014 "On strategic planning in the Russian Federation" * The Federal Law of 20.04.2014 No. 71-FZ On the amendments to the Federal Law "On the citizenship of the Russian Federation" and certain legislative acts of the Russian Federation * Decree of the President of the Russian Federation of 25.07.2014 No. 531 "On the amendments to the State Program for the Support of Voluntary Resettlement of Compatriots living abroad" * Resolution of the Russian Federation Government of 22.07.2014 No. 690 "On providing temporary asylum to Ukrainian nationals in the Russian Federation in a simplified order"
2015	* The President Executive Order of 31.12.2015 №683 "On the Strategy of National Security in the Russian Federation" targeting "To create the conditions for stimulating the birth rate, reducing mortality, pursuing a healthy way of life, and developing mass children's and youth sport, and organize the promotion of a healthy way of life"
2016	* "The Concept on Safeguarding Population Reproductive Health in the Russian Federation for the period 2016 to 2025" * The Draft of the Interministerial Strategy on promoting healthy lifestyle, prevention and control for non-communicable diseases (NCD) for the period up to 2025 * The Government Decree of 20.10.2016 № 2203-p "On the approval of the state strategy to combat the spread of HIV in Russia through 2020 and beyond" * The Government Decree of 5.02.2016 №164–p "Strategy for the benefit of older people in the Russian Federation for the period up to 2025" * The Government Decree of 29.11.2016 №2539–p "Plan of actions on the strategy for the benefit of older people in the Russian Federation for the period up to 2025 (the first stage until 2020)" * The Federal Law of 01.05.2016 № 119-FZ (Edited on July 29, 2017) "On the peculiarities of granting to citizens plots of land in state or municipal-owned territories of the constituent entities of the Russian Federation that are part of the far Eastern Federal District."

Year	Document
2017	* The Government Decree of 20.06.2017 №1298-p "On the approval of the concept of demographic policy in Russia's Far East for the period up to 2025"
2018	* The Federal Law of 03.10.2018 N 350-FZ. (2018) "On the amendments to certain legislative acts of the Russian Federation on the allocation and payment of pensions"
2019	* Development and implementation of the national program of raising the quality of life in old age "Older Generation"

2.1.2 Initiatives on demography policy: From national to regional level

The Concept of Demographic Policy of the Russian Federation for the period up to 2025 (further cited as Concept of Demographic Policy) (*Ob utverzhdenii Kontseptsii demograficheskoy politiki Rossiiskoi Federatsii na period do 2025 goda* 2007) was introduced in response to clear concerns on slow growth in certain regions of Russia as well as slight to severe depopulation in others. Acknowledged is a particular challenge to prevent the further significant loss of people in the Arctic and Far Eastern regions. These include the regions with the highest indication of shrinking (Republic of Komi, Arkhangelsk, Murmansk, Magadan and Sakhalin oblasts) as well as less depopulating regions such as the Republic of Karelia and Sakha (Yakutia). The Concept of Demographic Policy sets definite quantitative targets with regard to Russia's population number: stabilising the population number by 2015 at the level of 142–43 million people and establishing the conditions for its growth to 145 million people by 2025. The later merging of Crimea increased the total population of the country and, due to this, the third stage of the Concept realisation (2016 to 2020) set a higher target to increase the population of the country to 147.5 million people by 2020 (*On the Realization of Plan of Actions for the 3rd Stage (2016–2020) of the Concept of Demographic Policy in the Russian Federation* 2016). (Also see *Table 1.*)

The Concept of Demographic Policy defined actions for the first period of implementation (2007–2010), where regional authorities had to develop regional demographic policies to take into account local demographic trends, and targeted population loss in particular. As of 2025, the Concept aims to provide a gradual population growth via increasing life expectancy up to 75 years, increasing the Total Fertility Rate (1.5 times to the level of 2006), and encouraging replacement migration (300 thousand immigrants annually). As a result of the Concept of Demographic Policy actions on depopulation, the number of citizens of the Russian Federation increased during the period 2015–2017, in part due to including the new Crimea region with its population of more than 2 million people (TARENT 2016).

The most severe population decline and most challenging demographic situation in Russia is in the Far East. As of 1.1.2016, the population of the Far East of Russia accounted for as low as 4.2% of the total population of the country, while occupying 36% of the total land coverage of Russia (Federalnaya Sluzhba gosudarstvennoi statistiki 2020). The population density in the Far East is also the lowest in Russia, one

person per one sq. km, which was addressed in the policy for the development of the region. In 2017, the government developed an additional Concept of Demographic Policy in Russia's Far East for the period up to 2025 (*Ob utverzhdenii Kontseptsii Demograficheskoy politiki Dalnego Vostoka na period do 2025 goda* 2017). Its priority lies in reversing population decline caused by large out-migration and natural decrease. A number of related state directions is to be implemented in two stages, during 2017–2020 and 2021–2025.

Population decline is seen as the main structural challenge that defines the Russian Federation's demographic policy. It started in the USSR and turned into an all-national demographic crisis in post-Soviet Russia. At the moment, Russia has a tiny cohort of potential mothers born in the 1990s who will not likely have a high number of births; hence the policy needs to comprehensively address all demographic components that lead to population growth. This is a challenge also relevant to many European countries.

2.1.3 Initiatives toward balancing the age structure

In expressing their views on the shrinking of the working force, the governmental representatives state that this alarming process is already happening and the prognoses show it to be shrinking even further. The Concept of Demographic Policy raises concerns on the problem of low fertility that leads to population ageing.

There are the Strategy and federal laws reflecting the long-term development of the pension system in the Russian Federation adopted in 2012–2013 (*O strakhovyh pensiyakh* 2013; *O nakopitelnoy pensii* 2013; *Strategy for the Long-Term Development of the Pension System of the Russian Federation*, 2012). Within the Strategy's framework, the government continues implementing measures aimed at raising the real level of pension provision for the older generation, establishing a decent level of pensions based on the principle of social justice. This is accomplished by providing a replacement level for the retirement pension consisting of 40% of the lost earnings under state insurance coverage linked to the average wage. Achieving an acceptable retirement level for the middle class has been also encouraged through participation in corporate and private enterprise pension systems (*Strategiya deystviy v interesah grazhdan starshego pokoleniya v Rossiiskoi Federatsii na period do 2025 goda* 2016).

The Russian pension system in its actual form was introduced on 1.1.2015, and included the following types of pensions: insurance pension, state-funded pension, and some other types. In 2017, 43 million Russian citizens received pensions. Under the new Federal Law *(□ vnesenii izmenenyi v otdelnye zakonodatelnye akty Rossiiskoi Federatsii po voprosam naznacheniya i vyplaty pensyi* 2018) to be implemented from 2019, the retirement age in Russia will be increased from 60 to 65 for men and from 55 to 60 for women. The changes have now occurred in stages over a period of 10 years and will end in 2028. The government's decision to raise the retirement age was due to demographic changes and population ageing and was unprecedented in the nearly 90 years of Soviet and post-Soviet history. Changes in the pension system

are made to ensure a steady increase in insurance pensions and, in the long term, bal-ance the ratio of working citizens and retirees.

Overall, the age structure of the Russian Federation has been redistributing towards more people of older ages, with a major concern in terms of the growing dependency ratios: OADR 49% in 2018 and 82.7 in 2050 (see *Table 2* and SCHERBOV et al. 2019). Median age is projected to increase from 39.6 in 2020 to 41.6 in 2050. It follows the Eastern European trend from 40.7 to 44.6 years in the same period (SCHERBOV et al. 2020). One noticeable feature of population development and age-ing in Russia is that it mostly concerns females; there is still a significant sex gap and two to three times more females surviving into old age. *Figure 1* and *Table 2* illus-trate the population composition in Russia from a variety of years, including an important component of human capital – educational attainment.
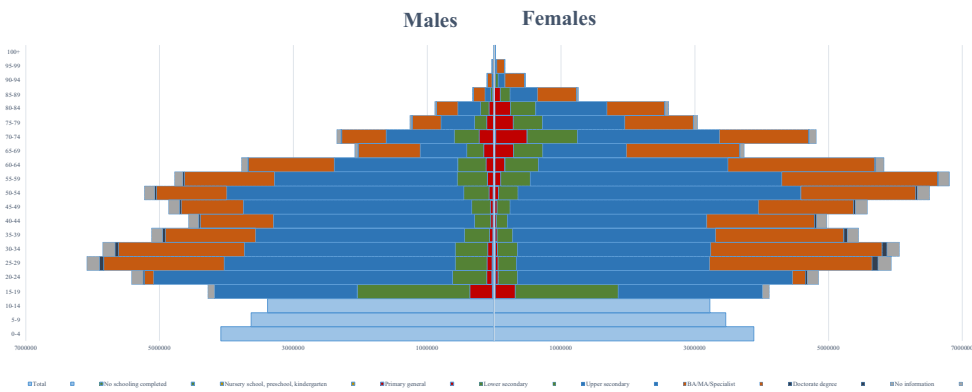
Projected total: 142,82 mln in 2015, Medium scenario in Emelyanova A. 2019

Figure 1
Population pyramid of Russia by education in 2010 based on census data, created by the authors

Table 2
Indication of population development and ageing in Russia (SCHERBOV et al. 2019).

Indicator, year	Value
Population size (thous.) 2018	146 880
Population size (thous.) 2050	137 360
Women per 100 men 60+ 2018	181
TFR 2017	1.62
No. of live births (thous.) 2017	1690.3
No. of live births (thous.) 2050	1328.2
No. of deaths (thous.) 2017	1826.1

Indicator, year	Value
No. of deaths (thous.) 2050	1986.1
Median Age 2018	39.2
Projected Median Age 2050	43.9
Net migration (total) 2017	211 878
Female LE at birth 2017	77.6
Male LE at birth 2017	67.5
Female LE 65 2017	18.0
Male LE 65 2017	13.7
Female old-age threshold[*] 2017	69.0
Male old-age threshold[*] 2017	62.6
OADR 2018 (F 20-54, M 20-59)	48.6
OADR 2050 (F 20-54, M 20-59)	82.7
POADR 2018	18.8
POADR 2050	25.6
Human Life Indicator (both sexes)	67.7

Notes: [*] With average remaining life expectancy of 15 years and less (%).

2.1.4 Initiatives on health and mortality

The Concept of Demographic Policy sets out a quantitative target with regard to Russia's population life expectancy at birth. The government sees the current life expectancy as low and recognizes the need to increase it up to 70 years (total for both sexes) by 2015 and 75 years by 2025 via enhancing the people's quality of life. According to the Concept's latest third stage realisation (for the period 2016 to 2020), the interim target in life expectancy is 74 years by 2020 (*On the Realization of Plan of Actions for the 3rd Stage (2016-2020) of the Concept of Demographic Policy in the Russian Federation*, 2016). To note, a strong concern/emphasis of the Concept of Demographic Policy is placed on reducing mortality from external causes among the working-age population, in particular males. Overall, male life expectancy at birth needs to be substantially increased, lowering the large gap between sexes, which was 10.1 years in 2017 (77.6 years for females and 67.5 years for males) (Scherbov et al., 2019).

Prevention is the priority direction of healthcare in Russia, as stated by Article 12 of the Federal Law on the fundamentals of health protection in the Russian Federation (*Ob osnovah zdoroviya grazhdan v Rossiiskoy Federatsii* 2011). Article 30

enacts the intersectoral approach on planning and implementing measures to promote healthy lifestyles as well as preventing and controlling non-communicable diseases (NCD) in the country. Since the law was released and the principal state position defined (intersectoral, preventive), it took several years to develop the relevant strategy. In 2017, the Russian Federation's Ministry of Healthcare has been leading the final stage of work towards the governmental approval of the Draft of Interministerial Strategy on promoting healthy lifestyles, prevention and control of NCD, for the period up to 2025 (Ministerstvo zdravoohraneniya Rossiskoi Federatsii 2018).

In the preamble of this Strategy, it says that NCD cause 68% of total deaths in Russia, which is a very high percentage and burden on the country's economy; hence we can assume that the level of concern is high. Once the Strategy is approved at the highest level, the next step will be the National Plan of Action on NCD (Ministerstvo zdravoohraneniya Rossiskoi Federatsii 2018).

The indicators of longevity, morbidity, and mortality in the regions of Russia are significantly associated with socio-economic factors such as income level. The stressful economic crises during the market economy transition in Russia have led to tremendous increases in crime, accidents, and morbidity-related deaths in particular due to alcohol consumption-connected diseases and psychoses. The economic uncertainties have also led to the spread of serious public health problems (e.g. HIV) and an increase in mental health issues (anxiety syndrome and depression) that noticeably lower the quality of life and survivorship among the population, in particular among working-age males. In general, the life expectancy at birth for males is more than 10 years lower than that of females (MOLCHANOVA 2016). Another important fact is that the Russian population is largely susceptible to unhealthy lifestyles. This is a socio-behavioral challenge that must be addressed in society (more in e.g. POPOVA 2014).

For these reasons, the policy on health and mortality should be part of a healthy economy and healthy lifestyle policy and continue to: enhance the economic wellbeing of individuals and reduce poverty; tackle alcohol-related mental health problems; address mortality from external causes; promote sports and healthy nutrition; and all these more so in prevention than in treatment. To work on these tasks, the policy must invest more in building sufficient scientific evidence. This scientific evidence will promote an understanding of the real situation, as it is unfolding across the regions, as well as the underlying causal/associative reasons. It is important to remember that Russia is a vast country and has notable differences in longevity and population health determinants; therefore, it may require a region-nuanced policy response.

2.2 Policy actions for the benefit of older people

In this section, we move to discuss the research on healthy and active ageing in the Russian academic literature and the most recent policy initiatives specific to societal ageing, elderly people and their health.

2.2.1 Russian academic literature on healthy ageing

By searching the Russian scientific electronic database 'eLibrary.ru'[2], we evaluated the scope of focus on this theme using the words 'healthy ageing' and the often interchangeably used term 'active ageing' in the title, abstract, and keywords of the Russian research journal articles, books, academic dissertations, conference proceedings, and reports. We made a search for the period of the last five years about 1. healthy ageing, 2. healthy ageing policy, 3. active ageing, and 4. active ageing policy. As seen from *Table 3*, the number of relevant publications on healthy and active ageing is small (30).

Table 3
Results of the search for healthy and active ageing publications in eLibrary.ru

Search word in eLibrary.ru	Publication hits by search word	Relevant publications after title/abstract/full-text screening
1. "здоровое старение" – healthy ageing	142	12
2. "политика здорового старения" – healthy ageing policy	8	0
3. "активное старение" – active ageing	141	10
4. "политика активного старения" – active ageing policy	32	8
Total	323	30

Note: In search 2 often the same papers appeared as in search 1, and also the results of search 4 yielded numerous duplicates from search 3. Duplicates were not removed from the Table numbers.

The search results demonstrate that only a few Russian researchers use the terms 'healthy ageing', 'active ageing' or policy about it in their title, abstract, and keywords. This is despite the fact that many publications discuss important aspects of it in their full text, such as nutrition in old age, raising pension age and financial security, gerontological education and geriatric health care, the national program for older people, and other relevant topics that constitute healthy ageing.

One explanation is that an operational definition of healthy ageing is still being debated and a consensus has not yet been achieved either in the English language literature (POSCIA et al. 2017) or the Russian one (GOLUBEVA 2016). In the former, MCLAUGHLIN and colleagues (2012), who analysed the impact of different definitions of healthy ageing, concluded that a functional definition of health, i.e., free from symptomatic diseases and disabilities, may be acceptable. The valuable pragmatic approach

[2] The database eLibrary.ru contains over 33.5 million articles, books, dissertations, conference proceedings, scientific patents, and other research materials across all disciplines. One limitation of the eLibrary.ru database is that entering multiple key words at a time yields minimal to zero results. Therefore, only one key word or phrase was used in the query window. The used search terms were recorded as well as the number of results retrieved for each search on March 18, 2020. The hits were shown only for publications where the full text is available to the user.

supported by these researchers, however, does not account for the social dimension of 'active' ageing. This social dimension is considered as being crucial because of its impact on developing and maintaining health at all ages (LIOTTA et al. 2018).

SIDORENKO and ZAIDI (2013) noted that the term 'active ageing' is practically of little use in the CIS countries, mainly due to the fact that it can have a negative connotation in many (Slavic) languages of the CIS countries. The notion 'active ageing' might almost unconsciously turn on an image of someone who has become old too fast by accelerating through his/her life course. A negative view of ageing in general, and the active ageing in particular, can be attributed to the legacy of the recent past and the hardships of the continuing and still incomplete transition from the Communist past in many countries. In terms of semantics, a more acceptable term has been active longevity instead of active ageing. In the Russian research literature, we can find both definitions; however, in official governmental strategies, only 'active longevity' is used.

2.2.2 Initiative on ageing and for older people

In 2016, the Russian Federation Report provided details of the third appraisal cycle of the Regional Implementation Strategy to the Madrid Plan of Action on Ageing (*National Follow-Up to the UNECE Regional Implementation Strategy for the MIPAA in Russia*, 2016). In a further response to societal ageing, Russia introduced its strategy on ageing in Russia until 2025 (*Strategiya deystviy v interesah grazhdan starshego pokoleniya v Rossiiskoi Federatsii na period do 2025 goda* 2016) and consequently approved it. These strategies have been developed in addition to a number of federal and regional laws regarding the old age policies already in force. According to the strategy, principal directions should:
   • stimulate employment of people in later ages;
   • improve the present-day system of social and health services for the older population;
   • ensure their access and widen their opportunities in education and leisure;
   • fully integrate elderly people as consumers and provide age friendly goods and services;
   • overall, form a new positive image of people in older ages in society.

The main targets of these documents seem to be twofold: (1) to empower older people to live healthy and actively as long as possible, increase life expectancy and raise the quality of life, and (2) to coordinate the actions of state and public institutes in addressing population ageing. The Ageing Network Database provides a comparative overview of research and active ageing initiatives in Central and Eastern Europe, including Russian research. We noticed there are some differences in the implementation of programs on active ageing in Russia and other European countries. For instance, many Central and Eastern European countries developed mechanisms for assessing the effectiveness of program actions and the possibility of their adjustment. In Russia, specific mechanisms to evaluate the quality of programs are rare to

non-existent. In addition, European countries pay particular attention to support the research provided by informal caregivers, volunteering, physical activity (Active Ageing Network, 2020). These are the areas that need a larger research focus in Russia.

The 49 initiatives in seven larger domains have been suggested in the Plan of Actions on the Strategy on Ageing for the first period 2016 to 2020 (*Plan meropriyatiy po realizatsii v 2016–2020 godah Kontseptsii demograficheskoy politiki Rossiiskoi Federatsii na period do 2025 goda* 2016). For instance, it suggested creating the institute of mentoring: older workers pass their professional experience to younger colleagues. From 2017–2020, the plan calls for developing professional standards to train 'MD – Geriatrician', 'Specialist in palliative health care' educational programs, and increasing the funding to lead the research in the field of gerontology and geriatrics.

With regard to the important policy response on lifelong learning, various regions of Russia have been testing lifelong learning options in the last decade, introducing pilot projects such as the universities of third age in Moscow, St. Petersburg, and other cities in Central Russia (Samara, Smolensk). These programs have been fostering social inclusion, volunteering, upgrading social and art skills, activating the internal resources of an older person, computer literacy, learning how to live actively and healthily in old age, how to safely transition into retirement, psychological and legal support during the retirement transition, etc.

However, more work is needed to develop professional education programs necessary to empower a person for late-age employment. Further understanding is needed to effectively coordinate the activities of various education centres offering courses for the elderly, as well as coordinating sustainable funding schemes, informing the masses about the usefulness of lifelong learning, available opportunities and recruiting more 'old age' students. In addition, the overall governmental strategy/priorities must define ways to move forward with lifelong learning, advance of which is crucial in order to secure funding and wider usage.

The concept of lifelong learning had been drafted in 2013 and went through public and governmental discussions. It concluded that the priority should go to creating a wide network of opportunities for new up-to-date qualifications and skills to increase the competitiveness of older people in the labour market as well as granting self-fulfilment and raising their quality of life. It also called for the development of infrastructure and accredited course materials to proceed with that aim. It defined the principles, including the flexibility of individual routes for education, opportunities for distant learning, disability-friendly learning, diversification of education providers, and integration of lifelong learning into the mainstream policies on education, economic development, social protection and other associated policy areas.

The initial draft was revised and published again several years later (Souz rukovoditeley uzrezhdenii i podrazdelenii dopolnitelnogo professionalnogo obrazovaniya i rabotodateley 2018). Among other things, it defines the role of lifelong learning in society and aims to coordinate related policy actions at all levels of governance. However, the government has not yet approved this strategic document.

The segment of people in working ages (ages 16–59) has been shrinking in many regions of Russia, going down from 67.2% in 2010 (sexes combined) to 61.4% in 2018. At the same time, older aged people (60+) comprise one fifth of the population and this segment is growing (*Table 4*). Stemming from this trend and complementing the earlier Concept of Demographic Development and Strategy on Ageing, there has been a separate national project 'Demography' suggested as one of 12 priority projects in national development. It started in 2019 and the budget totals 3105,2 billion rubles from 2019–2024 (2973,4 from federal budget). The national project is meant to create a pool of interrelated activities to reach targets under the pressure of time and resource constraints. The 'Demography' national project, which addresses the accelerating population ageing, contains five directions. One is the 'Older generation' (Starshee Pokolenie) program, which focuses on the development and implementation of the support system and raising the quality of life in old age.

In the European doctrine on active and healthy ageing, the European Innovation Partnership on Active and Healthy Ageing has been constantly supporting the development and training on ageing topics over the past 10 years, including using the tools of the Horizon (Health) program, implementing research on ageing in the major European projects MOPACT and INNOVAGE (WALKER 2018), inviting experts from neighbouring countries, for example, Russia. In 2020, 13 thematic online seminars have been implemented within the framework of the action WE4AHA-H2020 Coordination and Support Action for the European Innovation Partnership in Active and Healthy Ageing. The topics covered staying safe in LCT institutions during COVID times, digitization in healthcare, and a number of other actives (see more in the European Commission 2020[3]).

Table 4
Population composition in the Russian Federation by larger age groups, % in total population, both sexes combined (Federalnaya Sluzhba gosudarstvennoi statistiki 2020)

	2010		2018	
	Men	*Women*	*Men*	*Women*
Children 0–14	16,75	13,71	19,44	15,96
Adults (16–59)	70,00	64,36	64,25	58,49
Older age people (60+)	13,25	21,93	16,31	25,54

'Older generation' is a federal level program of an interministerial character (co-financing 98,8 billion rubles in 2019–2024). It aims to create by 2024 the conditions to extending the period of active ageing and for the healthy life of people, raising the quality of life for the older generation, and increasing their motivation for a healthier lifestyle (Prezidium Soveta pri Prezidente RF po strategicheskomu

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3   https://ec.europa.eu/eip/ageing/news/13-thematic-workshops-will-be-funded-european-project-we4aha_en.

razvitiyu i natsionalnym proektam, n.d.). The initiatives related to this project are considered to be compatible with the international guidelines such as the WHO report on health and ageing (World Health Organization 2015). The main aim called 'Active Longevity' is pursued without a clear definition, in essence, via an increase in life expectancy to 78 years by 2024 and 80 by 2030 with four tasks:

- Development and implementation of the program on raising the quality of life of elderly people.
- Creating a long-term care system for older people and people with disabilities in all 85 regions by 2024, as part of the activities toward a better functional status of the population. It aims at a system of balanced state social services and health care at home and institutionally, non-state NGOs as well as supporting informal family carers (overall budget of 295 million rubles).
- Reconstruction and modernisation of the outdated infrastructure of social and health care services for older people, including the elimination of waiting lines.
- Free-of-charge professional education on the premises of existing universities and colleges and raising new competences that are relevant for the society, for older people in their pre-retired age (budget of 10,7 billion rubles) (DUBOVIK 2019).

2.2.3 Critical analysis of policy actions on ageing

The analysis identifies a few problematic areas in the above programs that are highlighted by the research community;

1. The definitions are not clear: what is meant by 'healthy ageing'? Adding 'healthy' to the indicator requires that developers explain what is meant by this. In some places, it is used as a synonym of the WHO term 'active longevity' as regarding a 'process of optimising' opportunities in health, participation in public life, and security in order to maintain the quality of life of an ageing population (World Health Organization 2015). In reality, the program sets the main target to achieve the indicator of higher overall 'life expectancy'. 'Healthy life years' would be something more meaningful to measure within the 'healthy ageing' program; however, there is a problem of limited statistical data in Russia. It will require many more resources toward data collection on mortality and morbidity in specific proportions of 'healthy' and 'unhealthy' older adults, and various other indicators of health in old age (TKACHENKO 2018). In comparison to the European countries, the indicator of healthy life years (HLY) could be considered a marker of active and healthy ageing as it accounts for the interaction of psychophysical and socio-economic factors during the individual's life course (LAGIEWKA 2012). This phenomenon is not consistent across European countries, since in 12 countries out of 28, the HLY expectancy at 65 years has decreased from 2010 to 2014 (Eurostat 2020).
2. The target life expectancy indicator to reach 78 years by 2024 and 80 by 2030 is problematic itself, as it does not state separate targets for males and females

in the program. Given that the longevity gap between sexes is one of the highest in the world, with the male mortality being 2–3 times higher than the female in Russia, it indicates the reluctance of the program's authors to understand the differences in the causes of such large discrepancies between the health of older men and older women in Russia and the inability to develop various gender-specific actions in national and federal activities (KLIMANTOVA 2019).

3. Given the recent increases in pension age, as well as the turbulent economic and other crises in the country, it is unclear whether those numbers are achievable; they may require an adjustment to quickly changing conditions (TKACHENKO 2018).

4. The program pays too little attention (and money) to the necessary prevention of neurodegenerative diseases such as Alzheimer's disease, dementia, frailty, and strokes. The solutions to fight these diseases will require changes to the current system of health and social care; however, little has been stated in the program activities so far (KLIMANTOVA 2019).

5. Target indicators are in fact contrary to the aims of increasing the healthy years of life. A project indicator about the hospitalisation of gerontological patients is projected to grow into the program. If the incidence rate is increasing, then the expected duration of a healthy life cannot increase. According to numerous researchers, the real activities aimed at improving the life of the older generation in the project are not enough; the adjustment of goals and target indicators is also required. The goal of 'increasing the expected duration of a healthy life' should be the main goal of the national projects 'Demography' and 'Health', since the indicator 'expected duration of a healthy life' is associated with morbidity indicators and the level of disability. The indicator 'expected healthy life expectancy' is based on subjective estimates of the population; it is impossible to trace the dynamics of its change, since it has not been previously measured in the Russian regions (BULANOVA 2019).

6. It is so far noted that the city of Moscow as a federal subject has succeeded the most in creating conditions for healthy ageing for its citizens and can be used as an example of successful practices (DUBOVIK 2019).

7. The program 'Older generation' is complemented with the programs 'Public health' (Ukreplenie obshhestvennogo zdorov'ja) and 'Public sport' (Fizkul'-tura i sport) under the same umbrella of the national project 'Demography' (Demografija). With regard to healthy ageing, a combined effort is expected in the healthy lifestyle propaganda, including dietary habits and nutrition, decrease in substance use, and mass sport, which is important for all age groups, including the elderly (KLIMANTOVA 2019). The actions in these programs are best realised in the corporate culture where employers shall develop programs for their workers, which might not be as effective as being widely promoted in other societal and public institutions.

To summarise, existing programs and policy documents illustrate the government's interest in the area of active and healthy ageing. However, there is a rather large focus on creating a long-term care system for the oldest persons, while lacking a variety of supportive activities for the younger among the elderly adults. Certain issues also exist with the usage of allocated finances, e.g., not all allocated money has been used; sometimes only a small portion of it has actually been spent. Among other issues, there is relatively little creativity – sub-national regions just repeat activities from old federal programs; delays in the planned action timelines; often an ineffective coordination and management of activities. Implementing these programs in relation to the documents adopted by WHO in the field of ageing and the MIPAA occurred 10 years later; little attention was paid to the differences across the regions of Russia and the formation of a policy of healthy ageing at the local level.

3. Conclusion

The government has enacted a range of strategic documents, legislative acts, orders and programs, reflective of national demographic trends and in many parts based on suggestions from the international frameworks on ageing. It illustrates that the government has recognised the upcoming ageing change, the need for health promotion at all ages and the targeted care for older people. The initiatives mainly prioritise further increases in life expectancy, the quality of life of older persons, as well as stimulating old-age productivity and active ageing. However, there are still many aspects that need further improvement, such as clear definitions, focused attention to the most vulnerable recipient population groups, a better coordination of the managing authorities, and realistic expectations toward implementation indicators.

The authors have acknowledged the rich databases on demographic processes and trends available via the Federal State Statistics Service and the Unified Interdepartmental Statistical Information System of the Russian Federation. Overall, collecting and reporting more detailed data should be further supported as this allows a proper analysis of the ageing variations at the sub-national and municipality levels of such a large country as Russia. Addressing current trends, data and statistics shortage is crucial in moving forward to more evidence-based policy solutions toward healthy ageing.

At the same time, the authors have noticed a lack or absence of publicly available data and research on some core topics related to healthy and active population ageing, such as an age-friendly environment; participation in social activities; lifelong learning, leisure, sport and tourism activities among older people; elderly migration aspects; policy initiatives and their results by granularities of ethnicity, age, sex, education, and others. The Russian researcher community needs to provide more public discussion of these aspects.

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NGUYEN THI PHUONG MAI[*], KIM BAO GIANG & NGUYEN VAN TUAN

ALCOHOL-DEPENDENT INPATIENTS IN NORTHERN VIETNAM

A Follow-Up Study on Relapse and Co-Occurring Psychiatric Disorders[**]

Background: The prevalence of alcohol dependence has been increasing in several countries in the world as well as in Vietnam. This study aims to describe relapse among alcohol-dependent inpatients in Northern Vietnam and some co-occurring psychiatric disorders in these patients.

Methods: This study followed 53 alcohol-dependent patients who were treated for six months at the Vietnam National Institute of Mental Health. At the point of one month, three months, and six months after being discharged from the hospital, the patients were monitored for their alcohol consumption, relapse into alcohol dependence, and co-occurring psychiatric disorders by clinical psychiatrists, using the International Classification of Diseases, the 10th edition, Hamilton depression rating scale, Hamilton anxiety rating scale, Pittsburgh Sleep Quality Index, and the EQ-5D-5L Life Quality Assessment.

Results: The prevalence of relapse into alcohol dependence was 81.1%. The highest relapse rate was found in the first month after alcohol withdrawal (46.5%), then it decreased gradually. 53.9% of the relapsed patients had at least four alcohol withdrawals; they mainly used home-brewed alcohol. The average daily alcohol intake was fairly high: 14.4 ± 8.5 standard drinks. Mental disorders such as depression, anxiety, and sleep disorder were very prevalent among patients with relapsed alcohol dependence.

Conclusions: The rate of relapsed alcohol dependence in Northern Vietnam was very high. It is important to detect and treat psychiatric disorders simultaneously with alcohol dependence to achieve better treatment effectiveness and reduce relapse rates.

Keywords: alcohol dependence; relapse; co-occurring psychiatric disorders

1. Introduction

Alcohol dependence is a chronic relapsing pathology, the relapse rate is relatively high, ranging from 60% to 90% (THOMPSON et al. 2018; WALITZER & DEARING 2006). A number of studies around the world found that most alcohol-dependent patients relapsed within three to six months after being discharged, with the risk of relapse being highest in the first two months (PROCHASKA et al. 1992; ZYWIAK et al. 2006). Although in recent years, many countries have adopted policies and educational programs about the harmful effects of alcohol dependence, as well as detox and treatment measures against alcohol relapse, the number of alcohol-dependent cases has continuously risen. In 2017, twenty percent of the adults were heavy episodic drinkers (compared with 1990 when it was estimated at 18.5%), and this prevalence is expected to increase to 23% in 2030 (the prevalence of heavy episodic drinking was estimated with fractional response regressions using survey data from 118 countries) (MANTHEY et al. 2019). This is partly due to the number of new users or newly diagnosed subjects with alcohol dependence, and on the other hand, due to many people, returning to alcohol dependence at various levels after the alcohol rehab time.

The relapse into alcohol dependence is likely to result from a combination of various factors. Parameters involved in relapse include biological, psychological, social and spiritual factors. Some studies show that psychiatric comorbidity, alcohol dependence severity, craving, use of other substances, health and social factors are consistently significantly associated with alcohol dependence relapse. Conversely, supportive social network factors, self-efficacy, and factors related to purpose and meaning in life, are protective against alcohol dependence relapse. Particularly in clinical settings, a detectable, chronic alcohol use and relapse in patients are associated with mental disorders (SLIEDRECHT et al. 2019). An alcohol-dependent patient is 3.8 times more likely to suffer from schizophrenia and four to eight times more likely to have an anti-social personality disorder than a non-alcohol-dependent patient (American Psychiatric Association 2013; RAMESH SHIVANI et al. 2002). Approximately 30–40% of alcohol-dependent patients meet the diagnosis criteria of depressive disorder at a certain time throughout their lives and vice versa (BODEN & FERGUSSON 2011; SADOCK et al. 2015). Meanwhile, the rate of bipolar disorder in alcohol-dependent patients is only about 13.4%, usually lower than the rate of alcohol dependence among patients diagnosed with bipolar disorder. Twenty-five to fifty percent of those with alcohol-related disorders have anxiety disorders, especially phobias and panic disorders (SADOCK et al. 2015). Clinicians are challenged to diagnose such comorbidities, since psychiatric symptoms can be a direct consequence of excessive consumption which partially subside with abstinence, or are inconspicuous with alcohol use but become conspicuous only after abstinence from alcohol. It is important to recognize the dual disorders as early warning signs of the potential for alcohol dependence relapse after remission and perhaps trigger preventive or more intensive continuing care, because early intervention may reduce the severity of both disorders, improve the eventual outcome, and reduce health care costs.

This research aims to describe the current situation of relapse and some co-occurring mental disorders among alcohol-dependent patients who have been detoxified in Northern Vietnam.

2. Methods

2.1. Study design

This is a prospective study. The alcohol dependent patients were monitored during the time they were admitted to Vietnam National Institute of Mental Health[1] – Bach Mai Hospital[2], at the points of one month, three months, and six months after being discharged from the hospital.

2.1.1. Study settings

Bach Mai Hospital in Hanoi is the key hospital in Northern Vietnam which is equipped with 1900 beds, with 55 affiliated units, including three institutes, eight centres, twelve functional departments, twenty-three clinical departments, six para-clinical departments and Bach Mai Medical College, Journal of Clinical Medicine and Service Unit (Bach Mai Hospital main page, n.d.).

The Vietnam National Institute of Mental Health belongs to Bach Mai Hospital. The Institute consists of eight clinical departments (Out-patient, Stress-Related Disorder, Child Psychiatry, Schizophrenic Disorder, Mood Disorder, Substance Abuse, Psychogeriatric and Clinical Psychology) with 257 inpatient beds. On average, the Institute examines and treats 250280 inpatients and 300-350 out-patients per day (National Institute of Mental Health main page, n.d.).

2.1.2. Inclusion criteria

We selected the patients who were admitted to the Vietnam National Institute of Mental Health-Bach Mai Hospital with alcohol dependence according to the International Classification of Diseases, the 10th edition (ICD-10).

2.1.3. Exclusion criteria

Excluded from the study were the participants who suffered from severe medical problems.

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[1]   National Institute of Mental Health main page: http://www.nimh.gov.vn/.
[2]   Bach Mai Hospital main page: http://bachmai.gov.vn/.

2.2. Participants

Seventy Vietnamese patients with mental and behavioural disorders caused by alcohol use who met the criteria for the diagnosis of alcohol dependence according to ICD-10, were admitted to Vietnam National Institute of Mental Health-Bach Mai Hospital in 2018 and agreed to participate in the study. All the patients live in Northern Vietnam. The reasons for hospitalization were the symptoms of withdrawal syndrome or alcohol psychosis or sleeplessness, etc. A total of 53 patients were observed for a period of six months, 17 patients dropped out due to various reasons, including not wanting to continue to participate in the study, inconvenience due to the long distance between/ their home and the hospital, etc.

2.3. Measures

2.3.1. Variables used

The background characteristics of study participants were: age, gender, educational background, occupation and marital status. Variables related to alcohol dependence and relapse consisted of alcohol consumption (number of standard drinks), type of alcohol use, the common drinking place, relapse into alcohol dependence, time of relapse after discharge, the reasons for relapse, time of alcohol withdrawal, and co-occurring mental disorders.

2.3.2. Study tools

A standard drink was defined as containing 10g of pure alcohol (equivalent to 12.5ml of pure alcohol). A standard drink was equivalent to 285 ml full-strength beer (4.8% alcohol), 425 ml low strength beer (2.7% alcohol), 275 pre-mix spirits (5% alcohol), 100 ml wine (13.5% alcohol), 30 ml spirits (40% alcohol) (World Health Organization, 2009).

Relapse into alcohol dependence was defined as whether the patient met the criteria for the diagnosis of alcohol dependence according to ICD-10 following a period of abstinence.

Clinical psychiatrists diagnosed alcohol dependence, relapse, and mental disorders co-occurring with alcohol dependence using the International Classification of Diseases, the 10th edition (ICD-10). Depression was defined using the Hamilton depression rating scale (HDRS). The total score ranges from 0 to 52. Score 0–7: no depression. Score 8–13: mild depression. Score 14–18: moderate depression. Score 19–22: severe depression. Score over 23: very severe depression (HAMILTON 1960; SHARP 2015). Anxiety was defined using the Hamilton anxiety rating scale (HARS). HARS consists of 14 questions. The points present five corresponding levels from 'none' to 'very severe': 0. none; 1. mild; 2. moderate; 3. severe; 4. very severe. The total score under 14: no anxiety; score 14–17: mild anxiety; score 18–24: moderate

anxiety; score 25–30: severe anxiety, score over 30: very severe anxiety (THOMPSON 2015). Sleep disorder was defined using the Pittsburgh Sleep Quality Index (PSQI). The rating scale is a self-assessment table consisting of 19 items, which are evaluated by levels from 0 (no difficulty) to 3 (very difficult). The total score ranges from 0 to 21. The total score of 5 or greater indicates sleep disorder (GRANDNER et al. 2006). These psychological tests were verified by Cronbach's alpha with good and acceptable reliability. The reliability of the HDRS was 0.879. The reliability of the HARS was 0.897. The reliability of the PSQI was 0.771. And the reliability of the EQ-5D-5L was 0.848.

The general quality of life was assessed using the EQ-5D-5L Life Quality Assessment. This set of tools evaluates the quality of life in five aspects: walking ability, self-care ability, daily workability, pain/discomfort and anxiety/sadness (VAN REENEN & JANSSEN 2015). This was validated and widely used in Vietnam (TRAN et al. 2012).

2.3.3. Data collection

During the time they were admitted to the hospital, the patients were interviewed to gather information about alcohol use and related situations. Qualified psychiatrists assessed the patients via a comprehensive clinical examination using ICD-10 to get the final diagnosis of alcohol dependence and co-occurring psychiatric disorders. The selected patients then performed psychological tests to detect depression, using the Hamilton depression rating scale, the accompanying anxiety using the Hamilton anxiety rating scale, sleep disorders using the Pittsburgh sleep quality index (PSQI), and general quality of life using EQ-5D-5L when they cooperated. During hospitalized detoxification, all participants received pharmacological therapies for symptomatic and supportive treatment, which were up to the physicians; the researchers did not interfere with the treatment process. All participants were given general health education to encourage them to maintain abstinence or come to further clinical assessment for their relapse at the follow-up interviews. At the points of one month, three months, and six months after being discharged from hospital, the patients were monitored for alcohol consumption, relapse into alcohol dependence, co-occurring psychiatric disorders using ICD-10, the Hamilton depression rating scale, the Hamilton anxiety rating scale, the Pittsburgh sleep quality index, and EQ-5D-5L in the hospital or in their home. Qualified psychiatrists and psychologists did the total data collection process.

2.4. Statistical analysis

Data analyses were performed using Stata 13 software. Descriptive statistics included the estimates – (variables with normal distribution) or Sign test (variables with non-normal distribution) were used for comparing psychological test scores each time after the patients were discharged from hospital to the scores gained while they were in hospital. Associations between depressive disorder, anxiety disorder, sleep disorder and the

binary outcome of alcohol dependence relapse were examined with multiple logistic regression models, producing adjusted odds ratios and 95% of the confidence intervals.

2.5. Ethical considerations

Patients were clearly explained the objectives and methods of the study, and signed a consent form to participate in the study; they also had the right to withdraw from the study without explanation. They were informed that no discrimination in treatment would happen if they declined to participate in the study at any time. The patients' information was coded and kept confidential.

The study was approved by the Ethics Committee-Hanoi Medical University (decision number 09NCS17/HMU IRB).

3. Results

3.1. Socio-demographic characteristics

Of the 53 participants in the study, the majority of alcohol-dependent patients were male (98.11%), mainly employed (96.23%). Within that segment, the group of patients with high school education accounted for the highest proportion (39.62%). 77.4% of the patients were married. The average age of study subjects was: 47.2 ± 8.4. The average age at first use of alcohol was 19.6 ± 5.0. The rate of alcohol relapse was 81.13% (*Table 1*).

Table 1
Socio-demographic characteristics of study participants

Characteristics		n	(%)
Sex	Male	52	(98.11)
	Female	1	(1.89)
Occupation	Employed	51	(96.23)
	Unemployed	2	(3.77)
Academic Level	Primary school	4	(7.55)
	Secondary school	16	(30.19)
	High school	21	(39.62)
	College, university, postgraduate	12	(22.64)
Marital status	Married	41	(77.36)
	Single, separated / divorced	12	(22.64)
Alcohol relapse		43	(81.13)
Age (mean ± SD)		47.23 ± 8.37	
Age at the first time of alcohol use (mean ± SD)		19.55 ± 4.99	

3.2. Alcohol use and relapse into alcohol dependence

The rate of relapse was highest in the first month after detoxification (46.51%), then decreased over time. Among alcohol relapse groups, 53.85% of the patients had at least four detoxification periods before entering the hospital. The type of alcohol used the most was 30–40° alcohol; most of them were manually-brewed/ homemade alcohol. About four-fifth of the patients drank at home (76.9%), several times a day, both during meals and outside meals. The mean number of standard drinks for the total sample was 14.4±8.5 (*Table 2*).

Table 2
Alcohol use and relapse into alcohol dependence

Characteristics	Less than 1 month		1-<3 months		3-<6 months	
	n	(%)	n	(%)	n	(%)
Relapse	20	(46.51)	13	(30.23)	10	(23.26)
Times of alcohol withdrawal						
0	3	(15)	1	(7.69)	1	(10)
1	5	(25)	4	(30.77)	3	(30)
2	3	(15)	1	(7.69)	2	(20)
3	0	(0)	0	(0)	1	(10)
>= 4	9	(45)	7	(53.85)	3	(30)
Type of alcohol used						
Liquor 30-40°	17	(85)	11	(84.62)	9	(90)
Wine	2	(10)	0	(0)	1	(10)
Beer 4-5°	5	(25)	4	(30.77)	1	(10)
Handmade	17	(85)	11	(84.6)	9	(90)
Distillery-made	6	(30)	4	(30.8)	2	(20)
Time of drinking alcohol during the day						
Morning	8	(40)	5	(38.46)	7	(46.51)
Noon	17	(85)	11	(84.62)	8	(80)
Afternoon	8	(40)	9	(69.23)	6	(60)
Evening	15	(75)	8	(61.54)	8	(80)
During meal time	15	(75)	9	(69.23)	6	(60)
Outside meal time	10	(50)	8	(61.54)	6	(60)
Working time	1	(5)	1	(7.69)	0	(0)
Outside worktime	11	(55)	9	(69.23)	5	(50)
Average amount of alcohol per day (standard drinks) (mean ± SD)					14.4 ± 8.5	
Drinking places						
Home	15	(75)	10	(76.92)	1	(10)
Workplace	1	(5)	0	(0)	1	(10)
Eateries	12	(60)	6	(46.15)	1	(10)
Festivals, celebrations	5	(25)	4	(30.77)	3	(30)

3.3. Psychiatric disorders co-occurring with alcohol dependence at the time of hospitalization

Psychiatric disorders co-occurring with alcohol dependence in the study were depressive disorder, anxiety disorder, and sleep disorder. Qualified psychiatrists diagnosed these disorders, using ICD-10. The patients then performed psychological tests and the results showed that 62.26% of alcohol-dependent patients in the study had a depressive disorder, 41.51% had an anxiety disorder, and 67.92% had a sleep disorder (*Table 3*).

Table 3

Psychiatric disorders co-occurring with alcohol dependence at the time of hospitalization

Psychiatric disorders	Level	n	(%)
Depression	None	20	(37.74)
	Mild	14	(26.42)
	Moderate	10	(18.87)
	Severe	4	(7.55)
	Very severe	5	(9.43)
Anxiety	None	31	(58.49)
	Mild	5	(9.43)
	Moderate	11	(20.75)
	Severe	5	(9.43)
	Very severe	1	(1.89)
Sleep disorder	Non-sleep disturbance	17	(32.08)
	Sleep disturbance	36	(67.92)

3.4. Psychological tests at different time points

The mean scores of the Hamilton depression rating scale, the Hamilton anxiety rating scale, and the Pittsburgh Sleep Quality Index in the relapse group were higher than the non-relapse group. The mean scores of the EQ5D5L in the relapse group were lower than in the non-relapse group (*Figure 1–4*).

In the relapse group, the mean scores of the Hamilton depression rating scale, the Hamilton anxiety rating scale, and the Pittsburgh Sleep Quality Index, were all high during the hospitalization, and then gradually decreased in the first month after discharge and tended to increase progressively in three and six months intervals after

discharge. The mean score of the EQ5D5L was lowest during hospitalization, then increased in the first month after discharge and tended to decrease over time in three and six months intervals after discharge (*Figure 1–4*).
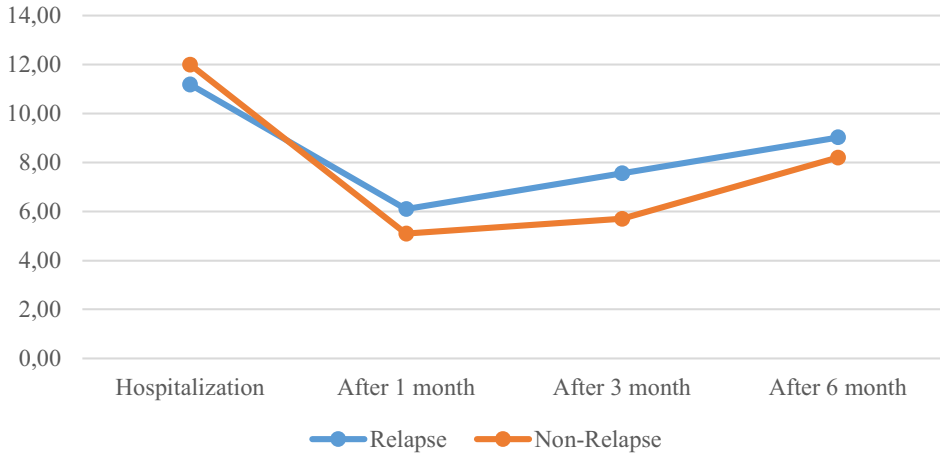
Hamilton Deperession Rating Scale

Figure 1
The changes on the Hamilton depression rating scale of the two groups over time
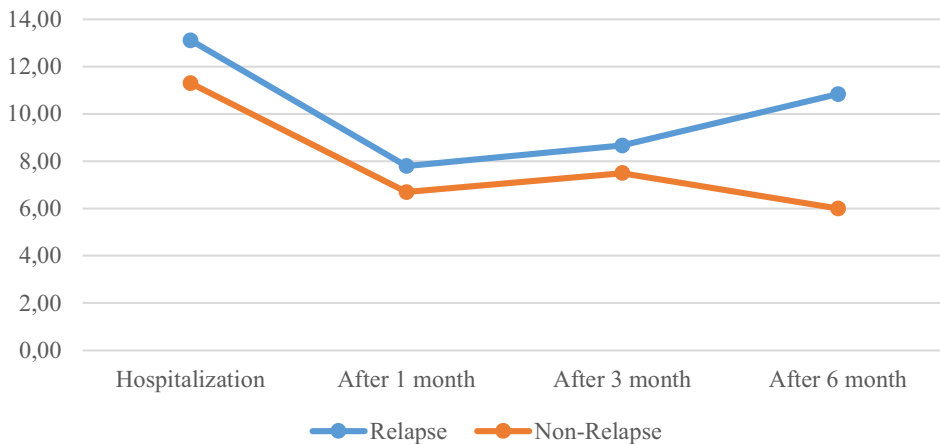
Hamilton Anxiety Rating Scale

Figure 2
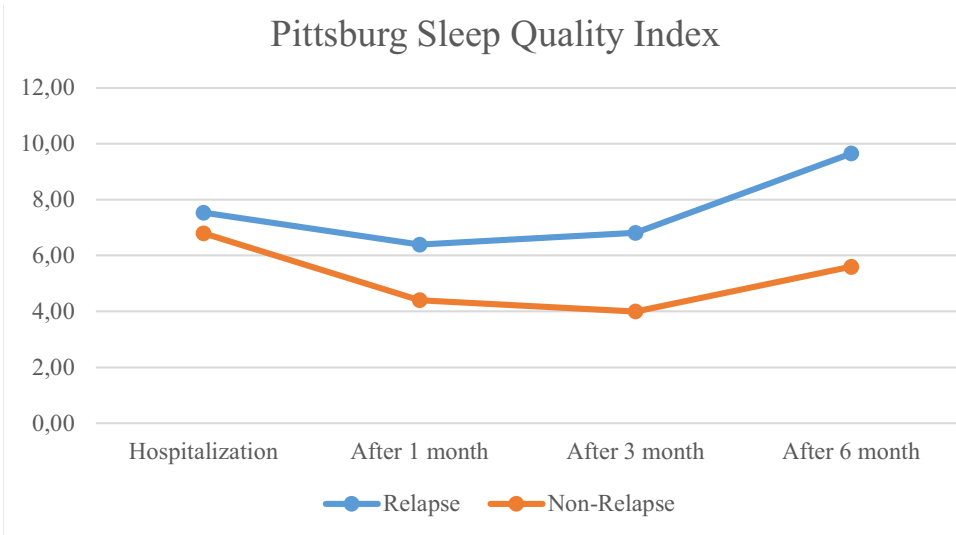The changes on the Hamilton anxiety rating scale of two groups over time

Pittsburg Sleep Quality Index

Figure 3
The changes on the Pittsburgh Sleep Quality Index of the two groups over time
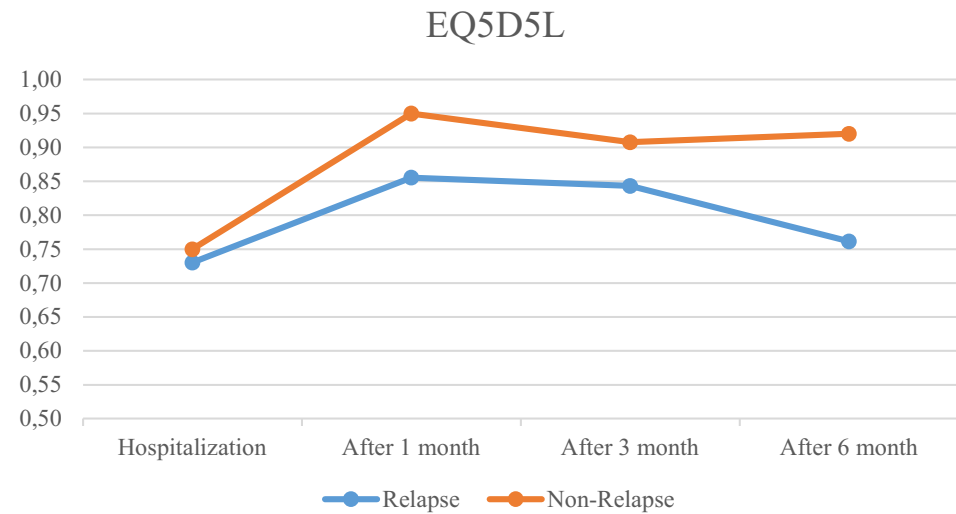
EQ5D5L

Figure 4
The changes on the EQ5D5L scale of the two groups over time

3.5. Association between co-occurring psychiatric disorders and alcohol dependence relapse at the time of relapse

There was a significant association between co-occurring psychiatric disorders (depression, anxiety disorder and insomnia disorder) and alcohol dependence relapse in our study. Depression and insomnia disorder increased the risk of relapse in alcohol-dependent patients. Anxiety disorder also decreased the risk of relapse in alcohol-dependent patients (*Table 4*).

Table 4
Association between co-occurring psychiatric disorders and alcohol dependence relapse
at the time of relapse

Psychiatric disorders	Odds ratio	95% CI		p-value
Depression (Yes/No)	75.12	1.563439	3609.203	0.029
Anxiety (Yes/No)	0.01	2.23E-04	0.9768085	0.049
Sleep disorder (Yes/No)	41.53	1.720121	1.00E+03	0.022

4. Discussions

4.1. Alcohol dependence relapse

As reported by THOMPSON and colleagues (2018), NGUYEN and NGUYEN (2013), the rate of relapse was 60 to 90% despite the treatment intervention. WALITZER and DEARING's (2006) research also found this rate to be around 70%. According to our study, 81.13% of patients had a relapse after the cessation. The rate of relapse was relatively high in general. The highest relapse rate was in the first month after alcohol cessation, accounting for about 46.51%. The rate then gradually decreased with time milestones. These findings were consistent with the research of NETO and colleagues (2008). This implies the need for positive treatment measures to prevent relapse for alcohol-dependent patients immediately after detoxification.

Among those patients who relapsed into alcohol dependence, 53.85 have been detoxified four times or more, accounting for the highest percentage. According to the research of ZYWIAK and colleagues (2006), 44% of alcohol dependent patients have been detoxified and relapsed into alcohol dependence four times or more, for an average of 3.2 ± 1.7 times. Our findings and those of ZYWIAK and colleagues showed that numerous alcohol dependent patients have detoxified and then re-addicted to alcohol many times, proving alcohol is an addictive substance that is difficult to give up and easy to relapse with.

The average amount of alcohol consumed per day by subjects who had relapsed to alcohol, calculated according to a standard drink, was 14.4 ± 8.5. This demonstrates

an alarming issue regarding alcohol dependence and alcohol relapse repetition in Vietnam nowadays, because of the high level of alcohol consumption. The rate has far exceeded the safe use of alcohol recommended by the World Health Organization, and many other countries (World Health Organization 2009).

Two types of white alcohol exist in Vietnam, which are homemade/privately brewed alcohol and alcohol produced by the distillery. Homemade alcohol has a low price and is easily accessible on the market. However, this kind of alcohol often does not satisfy the food safety standards because of its high aldehyde content, the recipes mostly based on the personal experience of the makers. Moreover, unsafe and low-quality alcohol has been reported to be sold in markets because of the profit, as well as the lack of knowledge and the sensibility of adherence to law. This has directly affected people's lives and community health. No change was detected in the alcohol types before and after the relapse in our study. The most common was still 30–40° white alcohol, mostly manually-brewed alcohol/homemade alcohol. The patients mainly drank at home (accounting for 76.9%) and many times per day, both during and after the mealtime.

4.2. Psychiatric disorders co-occurring with alcohol dependence

Thirty to forty percent of alcohol-dependent patients met the criteria for the diagnosis of major depression disorder at a certain point in their lives (BODEN & FERGUSSON 2011; SADOCK et al. 2015). Twenty-five to fifty percent of the alcohol-dependent patients met the criteria for the diagnosis of anxiety disorder. Agoraphobia and panic disorder were extremely common among these people (SADOCK et al. 2015). Community-based epidemiological studies showed that the risk of anxiety disorder stood 2.2 times higher in alcohol-dependent patients than in the general population. The lifetime prevalence of anxiety disorders in alcohol-dependent patients was 6-20%; the highest risk was for social phobia and agoraphobia (DOM & MOGGI 2014). A multicentre study in France involving 257 disordered patients with alcohol use found that 73.5% of patients had sleep disorders (PERNEY et al. 2015). Our research results also found a high rate of depression, anxiety, and sleep disorders co-occurring with alcohol dependence (62.26%, 41.51%, and 67.92%, respectively). Although it was difficult to determine whether these mental disorders occur before or during alcohol dependence, or after cessation, the occurrence of both alcohol dependence and these disorders caused the related disorders to be more severe and increased the tendency to recur (BLOCH & SINGH 2001).

The studies of KORLAKUNTA and colleagues (2012), and DRIESSEN (2001) observed that depression increased the risk of alcohol dependence relapse. Besides depression, many researchers also concluded that the rate of relapse was higher in the patients who simultaneously had anxiety disorders and alcohol dependence (DRIESSEN 2001). In addition, a significant relation exists between insomnia and relapse into alcohol dependence, in which insomnia increases the risk of alcohol dependence relapse (BROWER 2003; BROWER et al. 2001; 2011). Therefore, the early

detection and treatment of simultaneous psychiatric disorders in alcohol-dependent patients will contribute to reducing the risk of relapse. There was a significant association between co-occurring psychiatric disorders (depression, anxiety disorder and insomnia disorder) and alcohol dependence relapse in our study. Depression and insomnia disorder increased the risk of relapse in alcohol-dependent patients. However, anxiety disorder decreased the risk of relapse in alcohol-dependent patients. This could be due to our sample size not being large enough. With a larger sample size, the association between co-occurring psychiatric disorders and alcohol dependence relapse will be more conspicuous and more similar to other studies around the world.

Surveying the changes in psychological tests of the relapse and non-relapse groups, we found that the scores of the Hamilton Depression rating scale, the Hamilton Anxiety rating scale, and the Pittsburgh Sleep Quality Index in the relapse group were higher than the non-relapse group, whereas the scores of the EQ5D5L in the relapse group were lower than in the non-relapse group. Therefore, the relapse group often had more severe depression, anxiety, and sleep problems than the non-relapse group. It was easy to notice that the quality of life of relapse patients was lower than those who did not re-addict. In addition, in the relapse group, the high-level scores of scales after hospitalization gradually decreased in the first month after discharge and tended to increase gradually at the points of three and six months after discharge. At the same time, the scores of EQ5D5L – the lowest rate after hospitalization – increased gradually in the first month after discharge and tended to decrease gradually at the points of three and six months after discharge. The patients immediately stabilized in terms of mental activity and gradually improved in quality of life after discharge. However, after a while some disorders showed signs of returning gradually and the quality of life decreased due to the poor adherence to treatment, the return to alcohol, the pressures in life, etc. Therefore, it is necessary to provide effective and long-term interventions and support for patients when they return to their families and communities.

5. Conclusions

The rate of relapse among alcohol-dependent inpatients in Northern Vietnam remains at a high level. They relapsed rapidly after their discharge from the hospital, with the average amount of daily alcohol consumption being much greater than the safe level recommended by the World Health Organization, and many countries.

Depression and insomnia disorders increased risk of relapse in alcohol dependent patients. Therefore, early detection and concomitant treatment for co-occurring psychiatric disorders are needed to achieve better treatment efficacy and reduce relapse rates.

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PREVENTION OF DEMENTIA FORMATION IN RETIRED COMBAT PARTICIPANTS WITH A HISTORY OF TRAUMATIC BRAIN INJURY

Background: A set of measures to prevent the formation of gross organic mental disorders in combat participants having traumatic brain injury (TBI) is an important public health task. This study aims to conduct a catamnestic survey of retired combat participants who possess a history of TBI to determine the directions of prevention of dementia formation.
Methods: Seventy-one retired combatants were surveyed at the time of their retirement and three years after their retirement. Clinical and experimental psychological methods were used. To identify the dynamics of cognitive disorders, the Short Sample Test was used (in the adaptation of Vanderlick), and Kotenev's Questionnaire of Traumatic Stress was used for post-stress disorders –. The catamnestic method was applied via the study of outpatient cards and using a social survey of retired combatants three years after their dismissal.
Results: It was found that 47.8% of participants in combat operations had neurosis-like disorders with impaired emotions, 26.8% – organic emotional-labile disorder, 25.4% – organic personality disorder, 26.7% – alcohol abuse, and 25.4% were disabled due to mental illness. Three years after their dismissal, their cognitive abilities had a significant negative dynamic with a marked decrease in the integral indicator of intellectual activity; emotional disorders, and signs of psychosocial maladaptation were detected.
Conclusion: A catamnestic analysis of the mental health of participants in combat operations with traumatic brain injury in their history showed the presence of adverse psychosocial trends, a fact that requires the development of measures to improve the effectiveness of complex inter-professional therapy and rehabilitation. To prevent the formation of deep mental disorders with severe cognitive impairment and dementia, it is necessary to develop and improve the regulatory legal and information base for organizing psychiatric care.

Keywords: retired combatants; traumatic brain injuries; organic mental disorders; dementia prevention

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1. Introduction

In terms of natural annual population decline and low life expectancy for men in Russia, and considering the constant growth in the number of armed conflicts in the world, a set of measures for the prevention of coarse organic mental disorder formation s in combatants with traumatic brain injury (TBI) is an important healthcare task and is considered to be an emergency medicine in the framework of interdisciplinary areas of scientific and practical research (GUZOVA et al. 2010).

The prevalence of traumatic brain injury in the world per 1000 people varies from country to country; it is 7.3% in China, 5.3% in the US, 4.0% in Russia, and 1.1% in Scotland (SABIROV et al. 2017; ROSSTALNAYA 2017). Every year in the United States, 1.6 million people suffer TBI: 51 thousand of them die, and 124 thousand become disabled (PEETERS et al. 2015).

In the Russian Federation more than 120 thousand people became disabled due to fighting and war injuries; of those who need state support measures among the examined veterans, the war in Afghanistan produced a head injury count of 53%, and in the antiterrorist operation on the territory of the Chechen Republic, this number was as high as 56% (TROSHIN et al. 2011).

Participants in local wars and armed conflicts are a specific contingent that requires multi-disciplinary therapy with subsequent rehabilitation, and disabled people from among them can be allocated to a group of special social significance, since among veterans recognized as disabled for the first time, more than 50% (in some regions – up to 70%) are persons of working age (BOYKO et al. 2015). The analysis of the age structure pertaining to retired combatants who performed operational and service tasks in special conditions shows that these are mainly people aged 46 to 48 years (KARAYANI & KARAYANI 2014).

Even in the presence of severe mental disorders and significant social maladaptation, participants in combat operations often do not realize the need for treatment and rarely seek specialized help (GUZOVA et al. 2010). They tend to hide the disease's symptoms, and ignore the recommendations for examination and treatment; they see the need for help as a sign of weakness, and the offer of therapy as an insult. If untimely assistance is provided, personal disorders occur that disrupt social functioning and lead to disability of these retired combatants, followed by social decline up to the development of a dementia state (SOLOVIEV et al. 2017).

This study aims to conduct a catamnestic survey of retired combat participants who have a history of TBI in order to determine the directions for preventing dementia formation.

2. Materials and methods

2.1 Selection of study participants

We selected patients from among retired combatants who had at the time of dismissal a long service that entitled them to a pension.

2.2 Study design

This is a prospective study. The combatants were monitored when leaving the service and then again after three years.

2.3 Sample size

This is a catamnestic survey of 71 participants in combat operations who passed the military medical examination when retiring from the Russian power structure in the period from 2015 to 2018, with a closed TBI of mine-explosive etiology in the anamnesis, their average age being 44.3±3.4 years, who had a long service at the time of retirement, giving them the right to a pension.

2.4 Variable used and study tools

Clinical and experimental psychological methods were used when leaving the service and then again after three years. To identify the dynamics of cognitive disorders, the Short Selection Test was used (in the adaptation of Vanderlick) (BURLACHUK & MOROZOV 2002), and Kotenev's Questionnaire of Traumatic Stress was utilized to identify post-stress disorders' symptoms (BURLACHUK & MOROZOV 2002). The catamnestic method was applied via the study of outpatient charts and the use of social surveys of these ex-combatants three years after their discharge.

2.5 Research ethics

All participants were clearly explained the study's goals and methods, and they signed a consent form for participation in the study. They were told about the right to stop participating in the study without explanation. All received information is encrypted and kept secret.

2.6 Data analyses

The statistical processing of research results was carried out using the program SPSS 22.0, using the Mann-Whitney test [data presented as medians (Me) and first and third quartiles (Q1–Q3)] level of statistical significance p < 0.001.

3. Research results

The catamnestic analysis of the combatants' mental health showed that out of 71 people with TBI, 34 (47.8%) had neurosis-like disorders with impaired emotions, manifesting in the form of irritability, irascibility, and conflict; 19 (26.8%) suffered from organic emotional-labile disorder; and 18 (25.4%) were diagnosed with organic personality disorder.

When analyzing the cognitive abilities indicators of combatants during retirement, all results based on the Short Selection Test corresponded to the average limit of the age norm. Three years after the dismissal, these parameters had a significant negative dynamic with a marked decrease in the integral indicator of intellectual activity, there was a significant decrease in the ability to generalize and analyze information, which decreased the efficiency of spatial thinking, stability of mental activity, flexibility of thought processes and attention. This reflects the trend of increasing cognitive impairment in retired combatants having a history of TBI (*Table 1*).

Table 1
Features of cognitive functions in retired combatants having a history of TBI,
Short Selection Test, Me (Q1–Q3), points

Scales	Retired combatants with TBI, Me (Q1-Q3)		p
	At the time of dismissal	After three years	
Integral indicator	19.0 (12–21)	16.0 (11–13)	<0.001
Ability to analyze and summarize information	3.0 (2–5)	2.0 (1–3)	<0.001
Spatial thinking	4.0 (2–6)	2.0 (1–3)	<0.001
Stability of mental activity	4.0 (2–6)	2.0 (1–3)	<0.001
Flexibility of thought processes	5.0 (2–6)	2.0(1–3)	<0.001
Attention	5.0 (2–6)	3.0 (1–4)	<0.001

Note: p – was calculated using the Mann-Whitney test; the level of statistical significance p < 0.001.

The survey of respondents using Kotenev's Questionnaire revealed sufficient frankness and a tendency to an increased fixation on the state of health when retiring for seniority. The dissimulation of symptoms for post-traumatic stress disorder (PTSD) was not determined in them, and they did not associate their condition with the impact of combat stress. No significant differences existed in the scales indicating the presence of intrusion symptoms and avoidance of psycho-traumatic events. The respondents were characterized by symptoms of hyperactivity and had a high final indicator of the presence of PTSD symptoms. The scale of 'distress and maladaptation' reflected a sufficient level of adaptation to peaceful life. The test results indicated the formation of a neurotic state not associated with PTSD.

Three years after they were dismissed, pensioners had less frankness in the survey, a significant decrease in aggressiveness, and they were less focused on their health problems. A dissimulation of the state was observed with significantly higher indicators on the 'distress and maladaptation' scale. Their final scores for PTSD symptoms were significantly lower (*Table 2*), which probably indicates an increase in signs of psychosocial maladaptation against the background of cognitive and emotional disorders and is associated with the progression of the disease. In addition, 93.2% of the surveyed respondents had subjective cognitive disorders, represented by complaints of memory impairment, distraction, and difficulties in learning new skills. They noted that these symptoms reduce their domestic and social activities and make their daily life difficult. In 87% of the cases, the need for frequent use of sedatives was identified due to the presence of emotional problems of a neurotic nature.

Table 2
Frequency of occurrence of PTSD signs in retired combatants with a history of TBI, Kotenev's Questionnaire of Traumatic Stress, Me (Q1-Q3) points

Scales	Retired combatants with TBI, Me (Q1-Q3)		p
	At the time of dismissal	After three years	
Lie	52.0 (29.0–56.0)	55.0 (42.0–59.0)	<0.001
Aggravation	55.0 (41.0–59.0)	48.0 (35.0–57.0)	<0.001
Dissimulation	45. 0 (35.0–56.0)	20.5 (9.0–48.0)	<0.001
The event of injury	10.0 (6.0–14.0)	23.0 (12.0–34.0)	<0.001
Symptoms of intrusion	27.0 (22.0–34.0)	27.0 (22.5–35.0)	0.123
Symptoms of avoidance	27.0 (23.0–35.0)	28.0 (22.0–35.0)	0.214
Symptoms of hyperactivity	34.0 (26.0–40.0)	21.0 (12.0–33.0)	<0.001
Distress and maladaptation	14.0 (11.0–24.0)	24.0 (12.0–72.0)	<0.001
Signs of PTSD	85.0 (23.0–111.0)	68.0 (51.5–89.5)	<0.001

Note: p – was calculated using the Mann-Whitney test; the level of statistical significance p < 0.001.

When analyzing social indicators, it was found that 42 people (59.1%) were not employed; only 25 (35.2%) of respondents received psychiatric care, which is due to both an insufficient criticism of the disease and difficulties when applying to polyclinics at the place of residence. Furthermore, 19 (26.7%) abused alcohol, including 4.2 % who were diagnosed with alcoholism; 18 (25.4 %) were disabled due to mental illness; two of the veterans (2.8%) had tried to commit suicide (*Figure 1*).
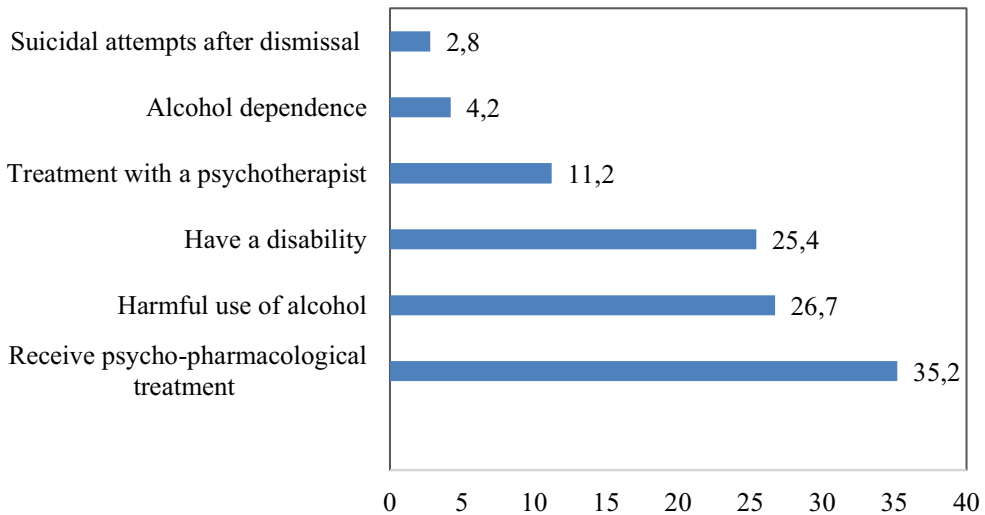
Figure 1
Social indicators of retired combatants, %

Implementing the therapy and rehabilitation of participants in combat operations with the consequences of TBI is significantly more difficult than for civilians, due to the presence of 'combatant accentuation', with the presence of short temper, irritability, discommunicativeness, as well as distrust of doctors and psychologists. When conducting their treatment measures, these patient characteristics should be taken into account, which often lead to conflicts and the refusal to conduct therapy. Preventing further cognitive disorders and slowing down the formation of dementia states are the main objectives of the treatment process. For an adequate correction of the existing mental disorder, it is necessary to apply both pharmacological and non-medicinal methods of therapy and comprehensive rehabilitation, including its social component.

In this regard, during the social and psychological rehabilitation of retired military participants, special attention should be paid to the development of human labor potential, which will help them to re-understand the post-traumatic experience they have endured, find new life prospects and values. An important aspect of social rehabilitation of this contingent is a participation in veterans' rehabilitation programs and public organizations offering a solution to such problems experienced by war participants as: the social protection of retired combatants, participation in patriotic education of young people, the mentoring of young employees in law enforcement agencies. For retired combatants, participating in social projects increases their employment and authority, which thereby reduces social maladjustment and improves their quality of life.

4. Conclusions

The catamnestic analysis of participants' mental health in combat operations with TBI in their history showed the presence of adverse psychosocial trends, which requires the development of measures to improve the effectiveness of complex poly-professional therapy and rehabilitation. To prevent the formation of deep mental disorders possessing severe cognitive impairment, it is necessary to develop and improve the regulatory legal and information base for organizing psychiatric care. This will not only enhance the quality of mental disorders diagnoses, but also improve the treatment of psycho-pathological disorders, reduce the patients' stigmatized attitudes toward the psychiatric service, and systematize areas of work to prevent the development of dementia. A need exists for a system of comprehensive medical and social protection measures that stimulate reserves for improving the mental health of retired combatants in order to create conditions for their self-realization and the possibility of a more active participation in public life.

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JOB STATUS AND DEPRESSIVE SYMPTOMS IN OLDER EMPLOYEES

An Empirical Analysis with SHARE
(Survey of Health, Ageing and Retirement in Europe) Data[**]

Background: Depression is a frequently occurring mental illness that has been shown to be strongly related to important life outcomes, such as education or labor. Few studies focus on the impact of job status on the risk of depressive symptoms.
Aims: We used longitudinal data from the Survey of Health, Ageing and Retirement in Europe for people aged from 50 to 64 years old across 11 countries to analyze how the type of job is related to depression.
Methods: Associations between the type of job and depressive symptoms are analyzed using logistic multilevel models.
Results: The risk of depressive symptoms is higher for self-employers. Among the self-employed, women are more at risk (OR: 3.22) as well as those who visit the doctor more frequently. On the other hand, people reporting a good quality of life and those living with a partner demonstrate a lower risk of depressive symptoms. These effects manifest less for employees, while the risk is also higher for women and those visiting the doctor frequently but lower for those who have a good quality of life or children.
Conclusions: The stress suffered at work is related to a higher risk of depressive symptoms. The self-employed usually experience more stress at work, as this is related to a larger responsibility and, usually, less stability.

Keywords: depression; anxiety; stress; discrete choice model; job status

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1. Background

Depression is an often-occurring mental illness that has been shown to be strongly related to some important life outcomes, such as educational or labor market outcomes (ETTNER 1996). According to the World Health Organization (WHO), 121 million people suffer from it today and about one in five adults would have had depressive symptoms sometime in their life. Following WHO predictions, it is expected that depressive disorders which are now the responsible for the fourth cause of death and disability worldwide, will occupy the second place, after heart disease after 2020. Depression has had a very significant growth evolution in recent years, intuitively calling to mind the idea of an epidemic; this evolution calls for a vigorous and urgent action. In addition to the treatments provided in hospitals, a social change and performance measures are required. Anxiety and depressive disorders are the most common mental disorders throughout life.

The literature review suggests that some of the depressive symptoms are function differently regarding the individual characteristics such as age, gender, or the kind of illnesses. MAES (2002) observed that in older people, certain depressive symptoms had greater relevance, such as weight problems, lack of reactivity, depressed mood, and loss of interest, insomnia, allergies, anxiety, loss of self-esteem, psychotic symptoms and psychomotor retardation. These results coincide with those obtained by STAGE and colleagues (2001) or SHARP and LIPSKY (2002), among others. Several authors believe that depression is more related to other existing diseases; FRANCO and colleagues (2003) concluded that the symptoms that differentiate depression between elder and young adult are those relating to the matters connected to dead or future losses of loved ones.

Other studies have examined the impact of mental disorders on the labor supply. Although there are several studies linking depression with to labor market success or failure, the research on the intensity of the connection has been less explored. Labor supply is associated with health outcomes (DEATON & PAXSON 1998 or CURRIE 2009), and in that sense, we think there is a negative relation; worse health implies fewer working hours.

Multilevel logistic regression models are increasingly being used to analyze clustered data in medical, public health, epidemiological, and educational research. A large body of studies focus on the association between a stressful work environment and depressive symptoms. LUNAU and colleagues (2013) found that the risk of depressive symptoms is higher among those experiencing an effort-reward imbalance and a low control at work. HOVEN and colleagues (2015) conclude that two important aspects of work (stress effort reward and low control at work) are significant in explaining socioeconomic differences in mental health.

In this study, we use occupational job status as a measure for the work stress environment, distinguishing between self-employers and employees. We are concerned with the idea that occupational status is an indicator of work stress due to the direct relation to aspects such as job stability or responsibility. So therefore, the hypothesis we want to test is that depression symptoms are associated with job status.

This paper contributes to the previous literature on depression and labor supply; first, we use the microdata form SHARE (BÖRSCH-SUPAN et al. 2013), which is one of the newest and most complete databases related to health and disabilities. Second, the use depressive symptom risk as an outcome variable is analyzed in three different statuses. In this paper, we show new empirical evidence regarding the effect of the job type on the risk of depressive symptoms.

This article provides evidence about whether work conditions mediate the association between occupational status and elevated risk of depressive symptoms.

2. Methods

2.1. Data

This paper uses data from the generated easySHARE data set (DOI: 10.6103/ SHARE.easy.710). The easySHARE release 7.1.0 is based on SHARE Waves 1, 2, 3 (SHARELIFE), 4, 5, 6 and 7 (DOIs: 10.6103/SHARE.w1.710, 10.6103/ SHARE. w2.710, 10.6103/SHARE.w3.710, 10.6103/SHARE.w4.710, 10.6103/ SHARE.w 5.710, 10.6103/SHARE.w6.710, 10.6103/SHARE.w7.710) (BÖRSCH-SUPAN & GRU-BER 2020; see GRUBER et al. 2014 for methodological details).

The Survey of Health, Ageing and Retirement in Europe (SHARE) is a micro database, which is longitudinal about health, socioeconomic status and social issues. This survey aims to build a European panel based on health and socio-economic issues that have a relation to the ageing process. It covers more than 85,000 individuals aged 50 or older from 19 European countries (+ Israel). This is a great tool to analyze the relations between health and labor force participation among European countries, as is our goal. SHARE is harmonized with the Health and Retirement Study (HRS) of the United States and the Longitudinal Study of Ageing (ELSA) from the UK, and is now at the center of a network of longitudinal surveys on ageing. Its strength is due to the panel structure that allows for taking into consideration the dynamic character of ageing and helps to identify individual transitions. SHARE started in 2002 and then the first wave was focused to 11 countries in 2004, it has been extended to 15 countries in the second wave, it returned to 13 in the third wave, and finally there are 19 in the fourth.

We select observations that have information available for the four waves of the survey in order to possess the most complete information about our variables of interest. Our sample has a size of 29.275 observations, but for some variables, the values are missing, the reason for this being that in some cases, we have fewer observations.

2.2 Variables and Measurement

Occupational Status: This is defined as the employment situation of the respondents. We divided it into self-employers or employees. This choice of variable is due to the correlation between work stress and job-type, considering that usually the self-employed have more factors related to suffering work stress.

Depressive Symptoms: This is a binary indicator of increased depressive symptoms, which is measured on the scale *EURO − D*, based on 12 items measuring depressive symptomatology. In our analysis, following SHARE indications, we are going to consider the risk of depressive symptoms should this scale be equal or higher than 4.

Other variables: Other socioeconomic variables are included, such as gender, age, whether the person lives with a partner, their number of visits to the doctor, if the person has children, the self-reported quality of life, whether the individual has chronic illnesses, and the number of working hours per week.

2.3. Statistical Analysis

In multilevel research, the structure of data in the population of interest is hierarchical. In these cases, the dependence among observations often comes from several levels of the hierarchy. The problem with this kind of dependency between individual observations also occurs in several survey researches, where the chosen sample is not taken randomly but rather cluster sampling from countries is used instead. In those cases, using single-level statistical models is not reasonable as they usually give us inconsistent estimates. In this study, the response variable is the high risk of depressive symptoms, which is binary, and hence a multilevel logistic regression model is a natural choice for modelling. Traditionally, logistic regression requires some known assumptions such as independence of the observations that are conditional on the explanatory variables, and uncorrelated residual errors. One of the advantages of multilevel models is that these assumptions are not always needed because the regression analysis consider the variations due to hierarchy structure in the data. In this sense, it is possible to use simultaneous analysis of the effects of group level (countries) and individual level (people) variables on individual level outcomes (high risk of depressive symptoms), while at the same time we are accounting for the non-independence of observations within groups. This model specification allows the examination of both – the between groups and the within group variability – and additionally, we can analyze how the group level and the individual level variables are related to the existent variability on both levels.

$$\text{Logit}[p(y_{ij}=1 \mid x_{ij}, \xi_j)] = \beta_0 + \beta_1 x_{1ij} + \beta_2 x_{2j} + \xi_j \quad (1)$$

With $\xi_j \sim N(0, \Phi)$ is a country-specific random intercept.

β_0 Is the log-odds ratio of $y_{ij}=1$ when $x_{2j}=x_{1ij}=\xi_j=0$.

β_1 Is the increase in log-odds ratio of $y_{ij}=1$ when x_{1ij} increases by one unit, but the other, x_{2j}, ξ_j remain unchanged.

The estimated results were computed in STATA14.

3. Results

Table 1 shows a description of the variables included in the analysis, as controls. The variable of interest is having a depressive risk and the main explanatory variable is the type of job. The hypothesis for the test is whether effectively working as a self-employer has a significant impact on the depression risk.

Table 1
Definition of variables

Variables	Definition
Working hours	Hours worked per week
Visits to the doctor	Number of visits to the doctor last year
Female	1 if female
Age	Age in years
Age^2	Age Squared
Education	Number of education years
Children	If the person has children
Chronic Illnesses	If the person has chronic illnesses
CASP	Value that the person scores in the scale of quality of live

Source: Own elaboration from SHARE.

Moreover, in *Table 2*, the main statistics of each variable are included. 57% of the sample were women, and the mean age was 57 years old. Among those having a job, 16% were self-employed and approximately 15% worked as civil servants. Centering our interest on chronic illnesses, 19% declared to have hypertension, 9% reported high cholesterol, 4% had suffered a stroke and 2% had diabetes. Depression was significant: 38% of the respondents reported to have it. The expenditure in food per month averaged 412 euros, people who drink more than three days per week amounted to 36%, and the quality of life in the sample had a mean of 38.05.

Table 2
Descriptive Statistics

Variables Obs.		Mean (if quantitative) Frequency (if binary)	Standard deviation
Working hours	5927	37.38	14,44
Female	13992	57%	0.49
Age	13992	57.29	4.84
Education (years)	13992	11.40	4.16
Visits to the Doctor	10450	5.65	8.56
Depression	10371	38%	0.48
CASP	8978	37.78	5.97
Partner	13989	81%	0.38

Source: Own elaboration from SHARE.

Differences in labor participation between people with or without depression are illustrated in *Table 3*. The employment rate is lower for hose having depression, the same as the retirement rate. On the opposite side, those suffering depression exhibit a higher unemployment rate as well as a greater proportion of incapacity to work and housework.

Table 3
Labor indicators related to the onset of depression (Percentages)

Population	Employed	Retired	Unemployed	Incapacity	Homemaker
People with depression	21.36	51.7	3.13	4.05	18.77
People without depression	26.6	56.07	2.35	2.45	11.76

Source: Own elaboration from SHARE.

In addition, it is important to highlight that hours of market work exhibit differences across European countries. For example, hours worked per week in the Netherlands are about 31.85; this is about four hours lower than in economies such as Germany, Belgium, Denmark, Italy and Switzerland, where average working

hours are about 35 hours. According to our sample, Sweden, with 36.99 and Spain, with 37.37 are the economies reporting more working hours.

We now present empirical evidence of the model exposed above, and test whether depression negatively affects labor participation. After a statistical description, we calculate a logistic regression model to estimate odd ratios of developing depressive symptoms. Given the structure of our data, we apply a multilevel method for individuals and countries so that the dependence of residual within a country is considered, because the constant is allowed to vary across countries. Thus, the constant consists in a fixed part and a random error term for each individual country. Consequently, the standard deviation of this error term shows how variations between countries of the constant are produced. That is, the proportion of the total variance may be estimated.

Table 4
Odds ratio about the association of occupational job status with risk
of elevated depressive symptoms (Multilevel estimates)

Variables	Self-Employed	Employee	All workers
Female	4.246*** [2.12;8.48]	2.071*** [1.58;2.69]	2.279*** [1.83;2.83]
Age	2.236 [0.443;11.53]	1.554*** [0.86;2.81]	1.516*** [0.93;2.46]
Age²	0.992 [0.98;1.00]	0.995*** [0.99;1.04]	0.996*** [0.99;1.00]
Education	1.054 [0.98;1.13]	1.015 [0.98;1.04]	1.015 [0.98;1.04]
Visits to the doctor	1.071*** [0.98;1.13]	1.054*** [1.03;1.07]	1.054*** [1.03;1.07]
Children	1.817** [0.92;3.55]	0.859 [0.67;1.09]	0.929 [0.7;1.13]
Chronic Illnesses	1.333** [0.97;1.82]	1.197*** [1.05;1.35]	1.119*** [1.00;1.24]
CASP	0.834*** [0.78;0.88]	0.848*** [0.83;0.87]	0.847*** [0.83;0.86]
Working Hours	0.999 [0.98;1.01]	0.993 [0.98;1.00]	0.998 [0.99;1.00]
Partner	0.472*** [0.22;0.99]	0.817 [0.60;1.11]	0.730 [0.56;0.93]
Standard deviation across countries	0.322 [0.06; 1.62]	0.103 (0.02;0.50)	0.103 (0.02;0.50)

Note: ***: Significance at 1% level, **: Significance at 5% level and *: Significance at 10% level.
Confidence Intervals in Brackets.
Source: Own elaboration from SHARE.

The estimates show that when we compare employees with the same age, health, quality of life, etc., the risk of depressive symptoms is higher in women than in men, with double the odds of risk (2.07). Risk also increases with age, with 55.5% higher odds per year of age [1.554–1 = 0.554]. Risk of depressive symptoms stands higher among employees who visit the doctor with more frequency *ceteris paribus*, with 5.3% higher odds per visit [1.053–1 = 0.053], and especially so among employees who have chronic illnesses (1.12). Contrariwise, the risk is lower for those who reported a better quality of life (0.847).

On the other hand, when we compare self-employers of the same age, health, quality of life, etc., the risk of depressive symptoms is higher in women than in men, with four times the odds of risk (4.25). Risk also increases with age and for self-employers, those who visit the doctor more frequently *ceteris paribus*, with 7.14% higher odds per visit [1.071–1 = 0.071] and among those who have chronic illnesses (1.33). Contrariwise, the risk is lower for those who reported a better quality of life and for those who live with a partner, which reduce the risk to the half (0.472).

There is a very substantial variation in the risk of depression symptoms among employees across countries. The standard deviation of 0.103 indicates that for people living in countries that are one standard deviation above the mean, the odds of depressive risk are 10.4 % higher than compared to people in an average country. The standard deviation is also equivalent to a correlation of 0.015 in the latent propensities to be at risk of comparable individuals in the same country $[0.103^2/ (0.103^2 + \Pi^{2/3}) = 0.015]$.

In the case of self-employers, the variation in the risk for depressive symptoms across countries is higher. The standard deviation of 0.322 indicates that people in a country which is one standard deviation above the mean have 38 % higher odds of depressive risk compared to people in an average country $[\exp(0.322) = 1.38]$. The standard deviation is also equivalent to a correlation of 0.046 in the latent propensities to be at risk regarding comparable individuals residing in the same country $[0.3222/ (0.3222 + \Pi2/3) = 0.046]$.

4. Discussion

In this paper, we provide evidence about the impact of occupational job-status on an elevated risk of depressive symptoms. Results are presented in Table 4 and we find that the variations of depressive symptoms are due to differences in gender (higher for women), self-reported health (higher for those who more frequently visit the doctor), self-reported quality of life (lower for those perceiving a better quality of life) and also lower for people with children and living with a partner. In addition, we find significant deviations of depressive symptoms between countries.

5. Conclusions

In conclusion, this paper has shown that some kinds of jobs (such as self-employment, which is usually associated with more stress, more responsibilities, or less stability) are then associated with an elevated risk of depressive symptoms in a sample of old people among 10 European countries. In this study, we focused on showing that the depressive symptoms vary across economic activities but also that they had a high variation across countries. This study is not without limitation: self-reported data are limited by the fact that they can rarely be independently verified, meaning that we take what people say as valid. Although evidence exists of a good correspondence between self-reported conditions and medical records, we might have underestimated the effects. Notwithstanding these limitations, our results are relevant for health policy and our findings provide new information about the prevalence of depression in working adults as well as the harmful effects of stressful jobs.

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INFANCY IN 21ST CENTURY HUNGARY – A PROJECT INTRODUCTION

Policy, Theoretical and Methodological Framework and Objectives of the First National Representative Parent Survey on Infant and Early Childhood Mental Health[**]

Objectives: *Infancy in 21st Century Hungary* is the first Hungarian national representative parent survey to examine early childhood mental health problems and important individual, family and broader environmental risk and protective factors associated with them.
Methods: In the study, families raising children aged 3–36 months were included. The sample was nationally representative according to the children's age and gender, and the type of residence. Data were collected in the winter of 2019–2020 from 980 mothers and 122 fathers. The parents were interviewed using a CAPI (computer-assisted personal interview) instrument at first, and then they filled out a self-administered questionnaire (SAQ). The measurement package was planned by an interdisciplinary research network coordinated by the Institute of Mental Health at Semmelweis University, while the sampling and the data collection were conducted by the TÁRKI Research Institute.
Results: Based on the parental reports, we will examine the prevalence of infant and early childhood mental health problems perceived by the parents, and the relationships between the background variables measured in several ecological levels. Due to the representative sample's socio-demographic diversity, we can map the generalizable variability of each examined construct and identify risk and protective factors behind the perceived developmental and mental health difficulties.
Conclusions: In this article, the policy, theoretical and methodological framework, the justification and objectives of the research, and the measurement package are presented.

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1. Introduction

1.1. Policy background of the research

1.1.1. Investments in early childhood development

Compared to school-age intervention programs, the financial and human resources invested in early childhood care, education, and mental health deliver proven returns at the global socio-economic level (GENNETIAN et al. 2016; HECKMAN 2011; DOYLE et al. 2009; HECKMAN & MASTEROV 2007; GRUNEWALD & ROLNICK 2007). The earlier we identify children and families with developmental risks resulting from disadvantaged biological or social conditions and transfer them to appropriate services and programs, the more successfully we can lower subsequent costs of special education and care and create economic and social benefits.

When a child is showing physical, mental or relational symptoms in development, the planned interventions should not only focus on the child himself, but also on the parents and the family caring for him, and on the institutional background and the professional teams that will help the family (see 'team around the child' / 'team around the family' perspectives; Institute of Public Care 2012; LIMBRICK 2007). According to the ecological model of human development (BRONFENBRENNER 1979; 1986; BRONFENBRENNER & CECI 1994; BRONFENBRENNER & EWANS 2000), the life of an infant or a toddler and his parents is impacted by many proximal and distal influences. Childbearing and childrearing values, goals and decisions of parents are influenced by a variety of factors. These include family structure, family functioning, social and institutional networks and the broader society and culture. All these environmental factors impact the parents' everyday parenting practices and interactions, and thus the development of the child (*Figure 1*). Besides the most important and influential microsystem around the child (his family and the most important interrelated proximal relationships), the members and agents of the mesosystem in Bronfenbrenner's model (especially helping professionals, services and teams around the child and the family) will become more and more important in the 21st century. The fate of children and families faced with biological (SHONKOFF & MEISELS 2000) or social (SHONKOFF & PHILLIPS 2000) disadvantage, and of relational, psychosocial or mental health problems (ZEANAH 2018) depends on the quality of organized help and support, the quality and availability of services (health care, education, social welfare, and family policy), and the services' adaptability to children's and families' real needs. The aim is, therefore, to create all the necessary material and personal conditions for all young children, regardless of their physical, mental and relational characteristics, starting at birth or even earlier, during pregnancy, to help them develop their skills and authentic personality to the fullest extent.

1.1.2. Infant and early childhood mental health (IECMH)

The development of early childhood intervention areas in Hungary. In Hungary, *early intervention for disabled or atypically developing children* is part of the special care system for decades. This approach was recently renamed as is now known as 'family-centred early childhood intervention' (CZEIZEL & KEMÉNY 2015). In recent years, much effort has been directed at reforming the national early intervention system through EU co-funded projects (KEREKI 2020). Since the mid-2000s, also through EU co-funded projects, remarkable intervention programs have been implemented specifically targeting *young children and families in socially disadvantaged settlements* (e.g., Biztos Kezdet program [Hungarian Sure Start Program]; Gyerekesély programok [Child Opportunities Programs]; HUSZ 2016). In addition to these two areas of intervention, the promotion and support of *infant and early childhood mental health* are also very important. However, it has yet to receive central support in Hungary. As child poverty and developmental and mental health problems of young children increase, families and the professionals who help them will need even more effective and targeted support so that disadvantaged children can receive the resources and services they need as early as possible.

Since these three intervention areas and target groups often overlap (KLAWETTER & FRANKEL 2018; WEATHERSTON & BROWNE 2016), we argue that the promotion and support of infant and early childhood mental health and the early parent-child relationship should be the priorities in every universal and targeted intervention programs and service networks in Hungary, just as they are in elsewhere in the international field (WEATHERSTON & FITZGERALD 2019; ZEANAH & ZEANAH 2018). The main goals of integrated health, social and educational services include supporting competent parenting, parental mental health, a positive parent-child relationship and the optimal overall and mental health development of infants and young children.

In the international tradition, infant and early childhood mental health (IECMH) is an interdisciplinary field in which theory and research, clinical practice and services, and training and policy issues are integrated (FITZGERALD et al. 2011; NELSON & MANN 2011).

1.1.3. Training, services, and policies on IECMH in Hungary
– Achievements so far and future aims

Professional education and training. In the international field, professionals (Infant Mental Health Specialists) are trained on several levels (HINSHAW-FUSELIER et al. 2018; ZEANAH et al. 2005a). There are also training programs that provide basic qualifications (BAs/MAs), but generally, specialists who intend to work in this field acquire complex theoretical, methodological and practical knowledge and skills in specialized postgraduate courses. We can find several trends and traditions in training with different focus points. The Anglo-Saxon approach is interdisciplinary: in addition to specific social assistance, emotional support, parent education on child

development and needs (developmental guidance), early relationship assessment and support, advocacy, and parent-infant consultation or psychotherapy (depending on the degree of clinical education and skills) are parts of a specialist's repertoire (e.g., WEATHERSTON et al. 2009; WEATHERSTON 2002).

Although some professional teams began work in the '90s in Hungary (NÉMETH et al. 2015), IECMH as an interdisciplinary discipline and practical approach is just beginning to become a hot issue in our country. Until 2010, only a few professionals were dealing with infants' and young children's mental health problems. They were generally trained in psychoanalytic psychotherapy, a discipline for which there is no university-level training in Hungary. Specialized postgraduate university training programs have been available for interested professionals only since 2010. Currently, there are three universities, including the Institute of Mental Health at Semmelweis University where students can study methods of parent-infant consultation. These are practice-oriented, specialized, 4-semester-long programs offering lectures for practitioners trained in different disciplines of helping professions. However, at present, there are no BA/BSc or MA/MSc training programs on IECMH in Hungary.

Semmelweis University Institute of Mental Health is planning to launch a new MA/MSc program and a professional centre for IECMH in the near future. The purpose is to establish a 4-semester-long interdisciplinary program on infant and early childhood development and mental health, where evidence-based knowledge on theoretical, clinical and policy issues would be shared with students. According to our plan, this MA/MSc program would provide a strong theoretical basis for students. Following graduation, students could choose clinical specializations (post-graduate training programs for consultants or therapists) or continue in a scientific direction to the PhD level.

Besides the integration of experiences in international training traditions, the empirical results of the first national, representative research on IEMCH in our country (21. századi babaszoba [Infancy in 21st Century Hungary]) can strengthen the need for introducing a new subspecialty of helping professions and the justification for establishing a new training program.

Services. Supporting parental well-being and infant and early childhood mental health (IECMH) has been a well-established interdisciplinary, cross-sectoral task in Western European countries and overseas for decades (OSOFSKY 2016). The tasks are performed in sectoral placements (primary care, early education, home visiting, etc.), in cross-sectoral integrated institutions or stand-alone networks of interdisciplinary teams (Infant Mental Helth Services) (GLEASON 2018; TRIGG & KEYES 2018; ZEANAH & KORFMACHER 2018). Many evidence-based and protocolled intervention programs are also available (ZEANAH et al. 2005b; STEELE & STEELE 2018).

In Hungary, some important initiatives were implemented. Therapeutic teams began work to support early mental health and parent-child relationships in the '90s, which later unfolded in the 2000s. However, these services remain scattered (NÉMETH et al. 2015; 2016). The evidence-based, interdisciplinary and systemic approach of IECMH are not yet widespread in our country. A future challenge is the acquisition of unified professional knowledge and competencies, as well as networking across

Hungary. It requires the collection and integration of both international and national experiences and the dissemination of a unified but diversity-sensitive approach. There is also a big challenge of broadening the existing services nationally.

Policies. Intensive policy work is also done in many countries (ZERO TO THREE 2016b; NELSON & MANN 2011). A series of guidelines and protocols[1] have been published on the key competencies expected of early childhood mental health professionals and the principles for designing effective services. Coordinating policy guidelines for professionals on uniformly expected competencies (knowledge, attitudes, practical skills), effective design of services and networks, and the availability of training, are such important requirements without which a society cannot strike a role in early childhood mental health (ZEANAH et al. 2005a).

IECMH policy is still completely missing in Hungary. There are some guidelines and protocols on subareas, but we have no general frameworks for competencies of specialists working in the IECMH field or guidelines for establishing new services.

National representative research can provide data on topics that can support the process of problem screening, identification and treatment, mapping specific needs of children and families, planning and organizing effective services.

1.1.4. Research on IECMH in Hungary – Achievements so far and future aims

Despite the international interest in IECMH problems for decades (see many edited or summarized works: ZEANAH 2018; BRANDT et al. 2014; PAPOUSEK et al. 2008; LUBY 2006; GREENSPAN & WIEDER 2005; OSOFSKY & FITZERALD 2000), detailed scientific presentation of the subject is still very incomplete in Hungary. Although several research teams have been dealing with early childhood development, specific research on early childhood mental health issues has only recently begun.

The *For Healthy Offspring* (Egészséges Utódokért) project was the first large sample study (n = 1164) in Hungary (conducted in the Heim Pal Children's Hospital in 2010–2011) examining the prevalence of early childhood regulation problems and measuring the complex bio-psycho-social background factors behind them. Although the For Healthy Offspring project (SCHEURING et al. 2012[2]) was outstanding due to the large sample size, the complex assumptions, the extensive measurements and the controlled methodology, it was not a representative study.

In Hungary, a comprehensive, interdisciplinary cohort study began in 2018, which partly examines infant and early childhood mental health issues. The *Cohort' 18 – Growing up in Hungary*[3] (Kohorsz '18 - Magyar Születési Kohorszvizsgálat;

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[1] Two important examples are the summary published in 2017 by ZERO TO THREE in U.S. (*Infant and Early Childhood Mental Health Competencies: A Briefing Paper*, retrieved 18 Nov 2020 from https://www.zerotothree. org/resources/2116-infant-and-early-childhood-mental-health-competencies-a-briefing-paper), and a guideline published in the U.K. in 2019 (*Infant Mental Health Competencies Framework,* retrieved 18 Nov 2020 from https://aimh.org.uk/infant-mental-health-competencies-framework/).

[2] See publications: http://heimpalkorhaz.hu/kutatasi-programok/

[3] https://www.kohorsz18.hu/en/

VEROSZTA et al. 2020; VEROSZTA 2019) was initiated by the Hungarian Demographic Research Institute (Népességtudományi Kutatóintézet) of the Hungarian Central Statistical Office (Központi Statisztikai Hivatal). It tracks the growth of children born in 2018–2019 from fetal age. A sample of 10,000 children is followed during pregnancy and then 6 months, 1.5 and 3 years after birth. A long-term goal is to examine children's life course into adulthood. This Hungarian cohort study has been examining sociodemographic, health and development issues. The team consists of demographers, sociologists, health scientists, and psychologists. The team examines children's developmental indicators and conducts background research on the family and the broader influences. Currently, the study is collecting data from parents of 1.5-year-old children.

No previous representative national research specifically on parenting and mental health of young children has been conducted in Hungary. That is why little is known about the national prevalence and background of parenting issues and IECMH problems. In 2019–2020 within an EU co-funded project (EFOP 3.4.3[4]), a representative parent survey (n = 980, called *Infancy in 21st Century Hungary*) on IECMH issues was conducted examining several levels of ecosystems in the background. The research was designed, and the measurements were planned by an interdisciplinary research network[5]. The members of the network were researchers and practitioners from several university departments and services. The planning of the measurement package was coordinated by the first author at the Institute of Mental Health at Semmelweis University Budapest. Sampling and data collection was performed by TÁRKI Research Institute. The survey (see methodological details below) fills an important gap in national basic and applied research. Several disciplines and professions can utilize the results, as it included questions about aspects of family sociology, developmental and family psychology, clinical psychology, infant and early childhood mental health, and paediatrics. Given the large representative sample, the results of this project are expected to attract international attention, especially as current relevant IEMCH literature comes mostly from small-sample or non-representative large-sample studies. Besides, to date, data have hardly been published from Central Europe.

1.2. Theoretical and methodological background of the research

1.2.1 A general framework

The constructs to be examined are theoretically supported by Bronfenbrenner's human ecological model (BRONFENBRENNER 1979; 1986; BRONFENBRENNER & CECI 1994; BRONFENBRENNER & EWANS 2000), Sameroff's transactional model of development

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[4]   EFOP-3.4.3-16-2016-00007 – 'Broadening the student base of Semmelweis University, through launching programs to support entry and attendance, and launching services at the new Balassagyarmat site'.
[5]   In the research network developmental researchers, sociologists, social workers, psychologists, mental health professionals, special education teachers, paediatricians, health visitors, parent-infant/young child consultants, IBCLC consultants etc. worked together.

(SAMEROFF 2009, 1975), the general systems theory (COWAN & COWAN 2006; BERTA-LANFFY 1968) and many other applied developmental theories (such as 'life-cycle' models: CARTER & MCGOLDRICK 1990; goodness-of-fit model: CHESS & THOMAS 2012). The importance of multifactorial causation in developmental psychopathology (CICCHETTI & ROGOSCH 1996; BRYANT 1990), as well as the knowledge of resilience research about the impacts of risk and protective factors forming development (MASTEN & BARNES 2018; LUTHAR et al. 2015), are also considered.

Besides the innate intuitive component of parenting (PAPOUSEK & PAPOUSEK 2002), caregiving and parental competence have a conscious component, that can be learned, developed, and changed. It has three levels related to each other: (i) knowledge about the child's developmental needs, (ii) child-rearing attitudes, values and views, and the (iii) concrete parenting practices and habits (BREINER et al. 2016). Parents' knowledge on development, attitudes and thoughts toward children, parenting goals, values and caregiving behaviours are greatly affected by the broader cultural context, as well as strong individual (e.g., parents' physical and mental health; children's biological features and temperament), family and intergenerational (e.g., own childhood experience, couple relationship, family functioning, support of broader family) and generational effects (e.g., information and support from others). These factors influence the development and psychological well-being of children indirectly through the direct impact on parenting and parent-child interactions (CUMMINGS & VALENTINO 2015; HINSHAW 2008). *Figure 1* summarizes the theoretical model of direct and indirect transactional effects.
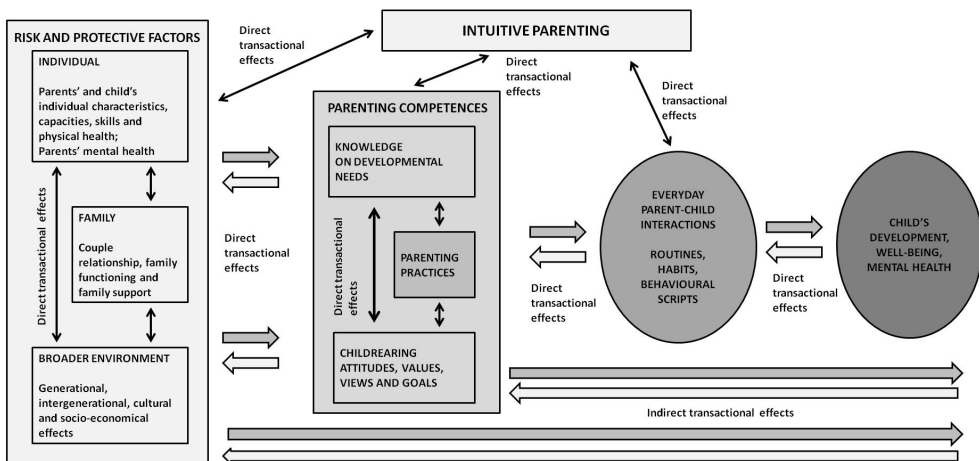

Figure 1
The theoretical model of direct and indirect transactional effects between individual, family and environmental risk and protective factors, parenting, parent-child interactions, and child development and mental health

According to international research, different mental health difficulties in infancy and early childhood are frequent, showing the incidence of symptoms appr. 5–20% in normal populations (ZEANAH 2018). In the aetiology of IECMH difficulties, problems or disorders (ZERO TO THREE 2016a; WOLRAICH et al. 1996), the most common process is when child, parental and environmental risk factors are simultaneously present. These risks can adversely affect parent-child communication and interactions and the emotional and behaviour co-regulation, which are the basic condition for mental health well-being in early childhood. In most cases, the cumulative combination[6] of somatic, interactional and psychosocial factors leads to problematic behaviours (PAPOUSEK et al. 2008).

1.2.2. Measurements in international research

The diagnostic definition of infant and early childhood mental health disorders is not a simple issue, since the diagnostic systems used (also in Hungary), the ICD-10 (WHO 2010) and DSM-5 (American Psychiatric Association 2013), do not provide a proper guide for the psychological care in early years. Several supplemental systems already exist specifically targeting the early childhood period (see DC:0-5™; ZERO TO THREE 2016a; DSM-PC; WOLRAICH 1996). Studies also vary in how the mental health difficulties, problems or disorders are defined, what clinical or scientific criteria and methods are used to highlight the risk groups. That is why interpreting and comparing the results is often a challenge. Many questionnaires in international research explore early childhood development or mental health (for summaries e.g. GODOY et al. 2018; SZANIECKI & BARNES 2016; DELCARMEN-WIGGINS & CARTER 2004), but there is no clear consensus on which ones should be generally used. It is also indicated in publications that instruments in use often do not have standards or appropriate psychometric indicators. A huge variety of national and international measurements on child characteristics, caregiving behaviour, the parent-child relationship and different family and environmental factors are already available (for summaries e.g. RAVITZ et al. 2010; VAN DEN BERGH & SIMONS 2009; ALDERFER et al. 2008; HOLMBECK et al. 2008; ZENTNER & BATES 2008; MORSBACH & PRINZ 2006). There are fewer questionnaires adapted in representative samples, in which cut-off points are also determined to signal dysfunctional processes.

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[6]   Research generally examine somatic and psychosocial factors in the prenatal (maternal age, prenatal stress, psychological problems in pregnancy, anxiety, depression, substance abuse, partner relationship problems, social isolation, unexpected pregnancy etc.), in the perinatal (birth complications, gestational age, birth weight, early separation etc.) and in the postnatal period (health status, neuromotor and developmental problems, partner relationship problems, maternal physical and mental health, family conflicts, difficult early childhood experiences, social isolation, unresolved trauma, loss or grief, socioeconomic pressures, maternal role conflicts, child temperament etc.). The prevalence of these factors are generally significantly higher in clinical samples than in control groups or in representative samples (PAPOUSEK et al. 2008).

1.3. Justification of the research and objectives

As training, service practices and policies in IECMH need to be evidence-based, representative national research can provide significant input for professional education and building future strategies of planning health, social and educational interventions.

As we mentioned above, representative research at a national level, specifically researching parenting practices and parental and early childhood mental health, has not been carried out before in Hungary. Little is known about the national prevalence and background of IECMH difficulties. There is no empirical knowledge about everyday life, parenting attitudes and practices in Hungarian families living with babies and young children today, their emerging problems and the multi-directional relationships between the underlying biological, psychological and social factors.

The social impact of the research and its support for clinical work is non-negligible. Having an accurate picture of the basic phenomena and the context of possible background factors is necessary for planning evidence-based family policy, health, social and educational interventions. By understanding factors causing difficulties for parents nowadays, we can also encourage giving birth more effectively. This is important given that the childbirth rate is showing a decreasing tendency in Hungary (KAPITÁNY & SPÉDER 2018).

The psychological well-being of a young child is primarily dependent on the quality of regular, proximal everyday parent-child interactions (BRONFENBRENNER & CECI 1994). Therefore, early childhood resources should be provided primarily for supporting parenting. To plan appropriate interventions, child, parental, family and broader environmental risk and protective factors should be identified (SHONKOFF & PHILLIPS 2000). These environmental factors can threaten or protect the mental health and competence of the parents, the quality of interactions between parents and their children and the mental health of infants and young children (see *Figure 1*). Since untreated behavioural and emotional regulation difficulties and mental health problems in infancy and early childhood can lead to clinical disorders later (PAPOUSEK 2008), there is a need for standardization of new measurements for early detection and follow-ups.

It is important to compare Hungarian results to international ones to assess potential cultural similarities and differences. Cross-cultural comparisons can broaden our perspectives in understanding how culture can affect parenting and IECMH well-being and problems[7].

1.4. General hypotheses

Based on the extensive scientific literature on developmental psychopathology (CICCHETTI 2016; LEWIS & RUDOLPH 2014), (1) we assume some risk and protective

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[7] In the case of interest to adapt the complex questionnaire package (with several measurements from the international literature) and planning joint projects for examining cross-cultural issues, please contact the first and correspondent author.

factors in the child and the parent as individuals, and in the family and the broader environment as systems, which can affect directly or indirectly everyday parenting practices, parent-child interactions, routines and habits. (2) It is also assumed that the variability of the children's usual daily routines and habits and the prevalence of emotional and behavioural regulation difficulties around the cut-off values of the clinical spectrum can also be associated with the variability of these individual and environmental background factors. (See also *Figure 1* and *2*).

2. Methods

2.1. Research design

In our research, we planned to conduct a large-sample questionnaire survey with mothers raising children under 3 years of age accompanied by a smaller subsample of fathers. It is a children-focused national sample representative for the children's age and sex, and the settlement types (see sampling methods and the characteristics of the final sample below). Although we had to omit direct observational and experimental methods, our large-sample questionnaire survey provides opportunities to study further specific questions and assumptions. Our cross-sectional design can only provide information about the interconnections between factors and variables. We cannot determine causal relationships; we can only formulate hypotheses about them. A longitudinal follow-up study may provide an opportunity for future mapping of causal relationships.

Our research questionnaire had two parts: a computer-assisted personal interview (CAPI) and a self-administered questionnaire (SAQ). We collected information on children's behaviour, habits, their parents' caregiving practices, and many individual and environmental factors likely influencing children's development and wellbeing. All constructs were examined through the parents' perception. Although this source of information is subjective in an applied developmental approach, it is significant, since most of the practitioners obtain information from parents first-hand. Recognition of problems is generally based on information received from parents, as longer and deeper observation is rarely possible during the screening phase. We aimed to edit and develop significant measurement tools to achieve useful empirical results, which could inspire both further research and practical work. In the future, we plan to complete the questionnaire methods with observations of the parent-child interactions and other in-depth investigations.

The research model (*Figure 1*) and the system of constructs (*Figure 2*) to be measured were planned, and the measurements to be used (*Table 1*) were chosen by the members of the research network. In the developmental phase of the research, we reviewed relevant international publications on early childhood development and mental health research, and large-sample birth cohort studies (for summary e.g. BLASKÓ 2009) to use these experiences in our design. Although similar large-sample early childhood mental health research has never been conducted in Hungary, we reviewed

the instruments and conclusions of the most important previous or ongoing large-sample child research and small-sample family studies conducted in our country.

The frame of the research model, the list of modules and constructs measured are shown in the following *Figure 1* and *2* and *Table 1*.
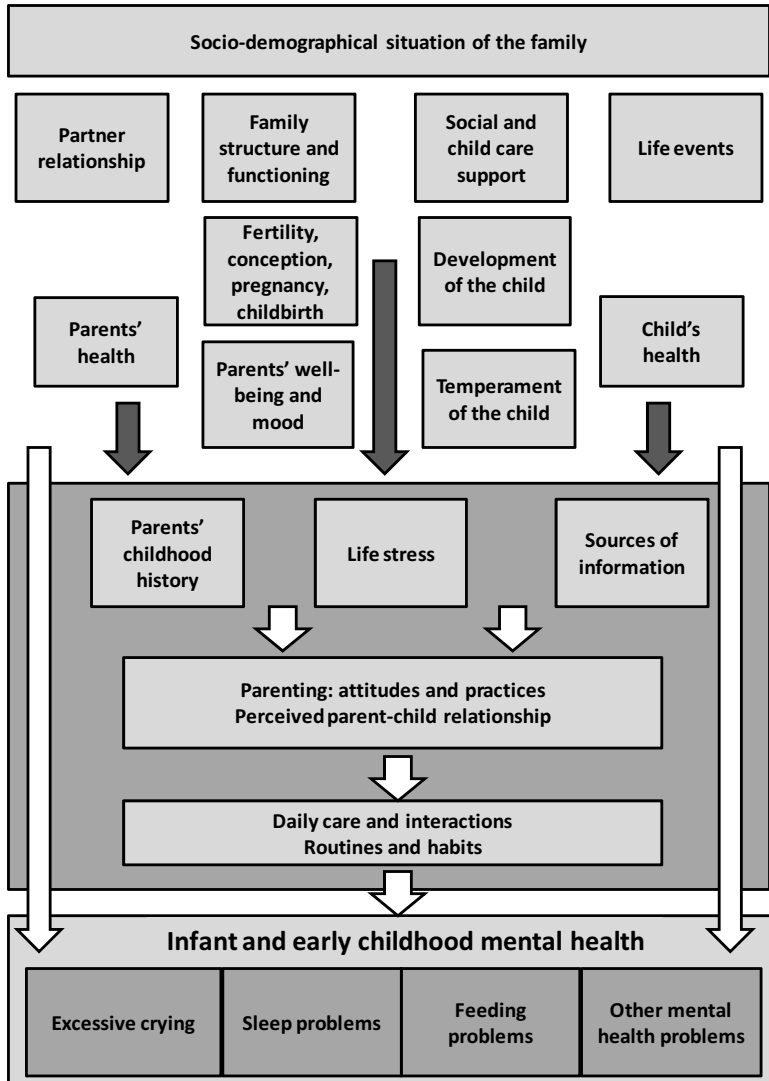

Figure 2
Individual, family and environmental factors in the background of infant and early childhood mental health – an outline of the examined topics in the survey

Table 1
Topics and constructs measured and used measurements in the survey

Modules	Topics	Measurements	Type of data collection
Socio-demographical situation	Demographic and socio-economic background of the parents: age, education, marital status, settlement type, mobility, employment status, housing situation, financial situation, children in the family, ethnicity, religion	Questions already used in previous Hungarian research (GERVAI et al. 1996; SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
Parent's childhood history	Childhood experiences in family or institution, divorce or death of parents, siblings, perceived quality of relationships in childhood	Original questions formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
	Painful life events and traumas in the past	Original questions formulated by the research network	Self-administered questionnaire (SAQ)
Parents' health	Parents' perceived general health, chronic illnesses, medications, health behaviour during pregnancy and present (smoking, alcohol, drug use)	Questions already used in previous Hungarian research (SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
	Vital exhaustion	*5-item short version of the Maastricht Questionnaire Vital Exhaustion Scale* (*MQVE;* APPELS et al. 1988; Hungarian version: KOPP et al. 1998; KOPP 2008; in Hungarostudy[8] 2002)	
Support in child care	Formal and informal support in child care: forms of daily care, support from family and others, support in domestic work	Questions already used in previous Hungarian research (GERVAI et al. 1996; SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
Social support and stress	Family relationships and emotional support, community relationships and support, stressful life events, perceived coping	Questions already used in previous Hungarian research (GERVAI et al. 1996; TÓTH & DANIS 2008; SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
	Perceived stress	*4-item short version of the Perceived Stress Scale (PSS*; COHEN et al. 1983; COHEN & WILLIAMSON 1988; Hungarian version: STAUDER & KONKOLY THEGE 2006)	Self-administered questionnaire (SAQ)
	Painful life events and traumas in the present	Original questions formulated by the research network	Self-administered questionnaire (SAQ)

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[8]   https://semmelweis.hu/magtud/kutatas/kutatasi-teruletek/hungarostudy-kutatocsoport/.

Modules	Topics	Measurements	Type of data collection
Parents' well-being and mood	Inner control, happiness, leisure time individually and with the spouse, sense of safety in different life areas	Questions already used in previous Hungarian research (EVS 2008[9]; DÁVID et al. 2016) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
	Depressed mood	*Depression Scale (DS1K;* HALMAI et al. 2008)	Self-administered questionnaire (SAQ)
Internet and media use	Internet and media use by the parents and the children, reading books together	Original questions formulated by the research network; adapted some from Common Sense 2017	Computer-Assisted Personal Interviewing (CAPI)
Fertility and conception	First menstruation, first sexual intercourse, pregnancies, miscarriages, stillbirths, contraception, fertility problems and diseases	Original questions formulated by the research network	Self-administered questionnaire (SAQ)
Pregnancy	Family planning, medical issues during pregnancy, information sources during pregnancy, perceived mood during pregnancy	Questions already used in previous Hungarian research (GERVAI et al. 1996; SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
Childbirth	Circumstances of childbearing, complications/medical issues during the childbearing, personal experience of childbearing	Questions already used in previous Hungarian research (GERVAI et al. 1996; SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
Early postnatal period	Weight and length of the child at birth, complications or medical issues with the child or the mother after birth, perceived mood in the first 6 weeks after birth	Questions already used in previous Hungarian research (SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
Breast-feeding	Decisions about breastfeeding, exclusive breastfeeding, supplementary feeding, weaning, difficulties during breastfeeding, pacifier use	Questions already used in previous Hungarian research (SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
	Attitude towards breastfeeding	*8-item short version of the Iowa Infant Feeding Attitude Scale (IIFAS;* DE LA MORA et al. 1999; Hungarian translation: W. UNGVARY et al. 2019)	Self-administered questionnaire (SAQ)
Child's health	Chronic illnesses or developmental disorders of the child, formal support from helping professionals, hospitalization, other separations	Questions already used in previous Hungarian research (SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
Development of the child	Present physical parameters of the child, care activities and playing, toilet training, autonomy, relationships with family members and others	Questions already used in previous Hungarian research (SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)

[9]   European Values Study: https://europeanvaluesstudy.eu/

Modules	*Topics*	*Measurements*	*Type of data collection*
	Developmental milestones	*Short versions of parental scales on child developmental milestones* adapted from the Hungarian national guideline for developmental screening in primary health care (ALTORJAI et al. 2014)	Self-administered questionnaire (SAQ)
Crying behaviour	Crying in the first 3 months and present, excessive crying, the success of calming strategies	Questions already used in previous Hungarian research (SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
	Attitude towards infant/toddler crying	*6-item short version of the Infant Crying Questionnaire (ICQ*; HALTIGAN et al. 2012; Hungarian translation: DANIS et al. 2019a)	Self-administered questionnaire (SAQ)
Sleep behaviour	Places of sleeping, sleep-wake rhythm, evening routines, sleep onset problems, night wakings, calming and self-calming strategies	Questions already used in previous Hungarian research (SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
		A shortened version of the Infant Sleep Questionnaire (ISQ; MORRELL 1999) and the *Brief Infant Sleep Questionnaire (BISQ;* SADEH 2004); Hungarian adaptation: TÓTH & GERVAI 2010; TÓTH et al. 2019)	Computer-Assisted Personal Interviewing (CAPI)
	The sleep of the parents (chronotype)	*Athens Insomnia Scale (AIS*; SOLDATOS et al. 2000; Hungarian translation: NOVÁK et al. 2004)	Self-administered questionnaire (SAQ)
	The sleep of the child (chronotype)	*5-item short version of the Children's Chronotype Questionnaire (CCTQ;* WERNER et al. 2009; Hungarian adaptation: RIGÓ 2019)	
Feeding and eating behaviour	Ways of feeding and eating, types of food and drink intake, eating together, autonomous eating, food refusal	Questions already used in previous Hungarian research (SCHEURING et al. 2012; KURIMAY et al. 2017) and original ones formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)
	Feeding problems	*The Montreal Children's Hospital Feeding Scale (MCH-FS;* RAMSAY et al. 2011; Hungarian translation: DANIS et al. 2019e)	Self-administered questionnaire (SAQ)
Infant and early childhood mental health problems		*Early Childhood Screening Assessment (ECSA;* GLEASON et al. 2010; Hungarian translation: DANIS et al. 2019c)	Self-administered questionnaire (SAQ)
Joy and general goals in parenting		Original questions formulated by the research network	Computer-Assisted Personal Interviewing (CAPI)

Modules	Topics	Measurements	Type of data collection
Perceived child temperament and caregiving	Perceived child temperament and caregiver confidence	*A 7-item shortened version of the global scale in Mother and Baby Scales (MABS;* WOLKE & ST. JAMES-ROBERTS 1987; Hungarian translation: LAKATOS et al. 1996; 2019)	Self-administered questionnaire (SAQ)
	Perceived warmth and invasion of the child	*The Hungarian version of the Mother Objects Relation Scale – Short Form (H-MORS-SF;* OATES & GERVAI 2003; 2019)	Self-administered questionnaire (SAQ)
Partner relationship	Attachment style in partner relationships	*12-item short version of the Experiences in Close Relationships – Revised version (ECR-R;* FRALEY et al. 2000; Hungarian translation: GERVAI et al. 2018)	Self-administered questionnaire (SAQ)
	Satisfaction with partner relationship and division of labour	Questions already used in previous Hungarian research (GÖDRI 2001; PONGRÁCZ & MURINKÓ 2009; PILINSZKI 2014) and original ones formulated by the research network	Self-administered questionnaire (SAQ)
	Dyadic coping	*6-item adapted version of Dyadisches Coping Inventar (Dyadic Coping Inventory; DCI;* BODENMANN 2008; Hungarian adaptation: MARTOS et al. 2012, MARTOS & SALLAY 2019)	Self-administered questionnaire (SAQ)
	Conflicts and disagreements, intention to divorce	Questions already used in previous Hungarian research (SPÉDER 2001; ANTAL & SZIGETI 2008; PILINSZKI 2013) and original ones formulated by the research network	Self-administered questionnaire (SAQ)
Parenting	Parental resilience	*Parental resilience scale of Parents Assessment of Protective Factors (PAPF;* KIPLINGER & BROWNE 2014; Hungarian translation: CSAPÓNÉ FERENCZI et al. 2015)	Self-administered questionnaire (SAQ)
	Co-parenting	*Daily Coparenting Scale (D-Cop;* MCDANIEL et al. 2017; Hungarian translation: DANIS et al. 2019d)	Self-administered questionnaire (SAQ)
	Childrearing attitudes sensitivity, discipline, daily activities	*Comprehensive Early Childhood Parenting Questionnaire (CECPAQ;* VERHOEVEN et al. 2017; Hungarian translation: DANIS et al. 2019b)	Self-administered questionnaire (SAQ)

2.2 Measurements

Commonly used instruments measuring emotional and behavioural regulation and mental health problems in early childhood and other background factors were selected. Permissions were asked for the adaptation of all the questionnaires not previously

used in our country. The instruments are not diagnostic measurements but appropriate for screening and identifying problematic constellations. For examining some specific topics, new, original questions were developed by the research network. Four types of devices were used in the package (*Table 1*):

- *Questions and scales without any changes:* questions and psychometrically appropriate scales that have already been used successfully in other Hungarian research. These questions or instruments were developed or translated and adapted by Hungarian researchers previously. Based on the representative results, these scales can be used with tested standards in the future.
- *Shortened scales* that were developed with the help of principal component analyses run on data of efficient but long scales previously used in Hungarian research. During data reduction, the strongest items explaining the original constructs well were selected. Then the internal consistency of the shortened scales was tested. Shortened scales only with good and coherent structure and adequate internal consistency were used in the representative research.
- *New adaptations of international scales*. After permissions for Hungarian adaptation, instruments in English effectively used in international research were translated into Hungarian and back. In the summer of 2019, online pilot studies were conducted to test the newly adapted instruments' validity and reliability. For the representative research, we only selected scales with appropriate psychometric parameters.
- *Original questions formulated by the research network*. We formulated some specific questions if some theoretical constructs lack adequate tools.

In the planning phase, a face-to-face pilot testing and discussion with parents (n = 10) took place to examine the data collecting situation and the time needed to complete the questionnaire (CAPI & SAQ) package. Parents were also interviewed on the topics questioned and the wording. Parents' opinions and suggestions were used for finalizing the package, so the research material was developed in a participatory way with the target group. Our final goal was to develop a maximum 90-minute-long questionnaire package. It had the above mentioned two parts: (1) a computer-assisted personal interview (CAPI), and (2) a self-administered questionnaire (SAQ) containing the sensitive questions and psychological scales. After finalizing the questionnaire package and the protocol of the data collection, a detailed manual was prepared for the interviewers.

2.3. Data collection

2.3.1 Pretests

The TÁRKI Research Institute (2020) performed the sampling and representative data collection. At first, the finalized questionnaire package was uploaded to an online interface (CAPI).

In 'Pretest 1' fieldwork, pilot interviews were conducted with women and men (20 people) with different demographic characteristics (urban/rural, low- and high-educated). During the pilot survey conducted in the fall of 2019, the structure of the questionnaire (wording, logical coherence), the survey time frame (length of data collection) and the functioning of the CAPI program were tested.

The length of the questionnaire greatly exceeded the upper time limit of a methodologically efficient questionnaire, so we had to shorten the questionnaire by about 30% by extracting or merging questions. Also, other minor changes to the questionnaire were required: several problems of interpretation and wording surfaced from the respondents' and the interviewers' feedback. Colleagues also suggested some rewording to help interpret and clarify the questionnaires. Additional interviewer instructions were included in the CAPI questionnaire, and a detailed interviewer manual was compiled on content and technical issues. Some CAPI programming changes were also made.

'Pretest 2', during which interviewers tested the improved questionnaire and CAPI program with 5 mothers, ended with satisfactory results.

2.3.2. Sampling

For sampling, TÁRKI (2020) used a multi-stage, stratified probabilistic sampling procedure. The latest available tables of the Hungarian Central Statistical Office containing live births by county and settlement type were used for this. The general requirement for the sample was to accurately represent the population of children aged 3–36 months and to reflect its social and territorial differentiation. Thus, the results and conclusions drawn from the data can be generalized to the total population within the statistical sample error rate.

When determining the number of addresses for the initial list, researchers took into account that the rate of non-response is higher in larger settlements. Therefore, the initial sample automatically contained addresses from the capital and all the county seats. As a general rule, at least one additional town and one village from each county were included. Overall the addresses covered 89 settlements and all the districts (23) in Budapest.

Addresses were requested from the Ministry of Interior in two waves (3022 then 3021 addresses; since at the beginning of the data collection, the non-response rate was too high in some Central Transdanubian counties). The entire sample list eventually consisted of 6043 addresses.

The research also included interviews with 122 fathers. To ensure the representativeness of the father's subsample, we used similar methods as for the mothers. In all settlement types of each county, fathers were included in the sample in the same proportion compared to the proportion of the children population at the target age. One to four father interviews from each settlement type from each county were taken.

2.3.3. Final data collection

Before the data collection process, the regional instructors received training on the purpose of the research and the structure of the questionnaire package, and the operation of the CAPI program. Then they received specific instructions regarding the fieldwork.

During the fieldwork, the interviewers visited pre-defined households according to the sampling process (see above), where they conducted the two-part data collection (CAPI and SAQ; see above) with the mothers of the selected children (and, if possible, those fathers who met the conditions of the quota for fathers). Due to the sensitivity of the topics, especially the mothers' life (pregnancy, childbirth, breastfeeding etc.) and childrearing, only female interviewers participated in the data collection.

In summary, the data collection was conducted between 2019 November and 2020 January. In the final sample, we collected data from 980 mothers (see data collection history below; *Table 2*) of infants and toddlers in a nationally representative sample. Also, dyadic data were collected for 122 families, where fathers were also interviewed. During the fieldwork, the selection of fathers took place in such a way that where it was possible to interview the father (he was at home and willing to answer), the interview took place. In the majority of cases (88.5%), interviews were conducted in one meeting, one after the other, and the remainder were queried on two separate occasions.

2.3.4. Ethical considerations and data protection

The research was approved by the Research Ethics Committee of Semmelweis University Budapest Hungary (Regionális, Intézményi Tudományos és Kutatásetikai Bizottság, Semmelweis Egyetem). The license number of the online pilot study is RKEB 143/219. The license number of the national survey is RKEB 240/219.

During the data collection, TÁRKI worked according to their general procedure. Respondents were informed of the following before starting the questionnaire: (1) responses are voluntary and information is kept confidential, (2) during the interview, the answers are recorded anonymously on the computer (CAPI), and the self-administered questionnaire (SAQ) is sent to the data entry staff in a sealed envelope, (3) the respondent's address and name are stored strictly separate from the information provided during the interview, (4) data are analyzed without any identifying information for research purposes, without each researcher knowing the identity of the respondents. The results of the research are presented in an anonymous form only, (5) if the respondent does not want to answer any of the questions, he/she can indicate this at any time and can withdraw his/her consent at any time in the future.

Only those parents participated in the research who gave their active written consent to the data collection. In the consent statement, we also asked for consent on two other topics: whether they would like to know about the results or related events, and whether we could visit the family (without any prior commitments) in a subsequent wave of data collection (after 3 years).

All documents (consent statement, address card) in which the name and contact details of the child/parent can be identified together with the serial number of the questionnaire are kept by TÁRKI, and data from them (e.g. concerning the willingness of participating in the subsequent wave of the research) are provided to the research leader upon request.

The members of the research network received only an anonymous, coded database for analysis.

2.4. Database

2.4.1. Checking process

TÁRKI (2020) monitored the work of interviewers in several ways. At least 15% of the respondents were called back by phone to check that they were actually interviewed and that the questioning was conducted properly (personal questioning, self-completion questionnaire, topics covered, etc.). As a result, 25 interviews proved to be questionable and were discarded.

The research institute implemented administrative controls to ensure data quality. The inconsistencies found during the data cleaning and the administrative systemization of the documents were clarified, mainly through telephone inspections and consultations with the instructors. They excluded cases, where there was a lack of consent (15 cases) or the questionnaires were largely incomplete or resulted in inadequate data quality (8 cases).

24 interviews were conducted with parents of children aged 37–39 months, so the research team decided to exclude these cases as well.

After the checking process, our final sample size is N = 980 for mothers and N = 122 for fathers. *Table 2* shows the total number of interview trials, the discarded interviews and the final sample size.

Table 2
From the total number of interview trials to the final sample size of the study

Interviews and final sample	N
Final sample size (mothers)	**980**
Excluded interviews due to age group difference	24
Discarded after checking questionable interviews	48
Successful interview	**1052**
Got in touch but no interview was conducted	44
The respondent refused to answer	489
Couldn't contact anyone	177
Wrong address (uninhabited, demolished or public building)	13
Wrong address (no child of the given name or age lives there)	72
The total number of interview trials	**1847**

2.4.2. Weighting

Representative distributions of given age groups were particularly important for the research and data analyses. Distortions due to refusals to respond and other reasons were corrected by weighting. Weights were based on actual Hungarian demographics (*Table A.1.* in the Appendix) of children aged 3–36 months (sex, age, type of settlement). *Table A.2.* (in the Appendix) shows the weights used in the final database. Among the youngest age group (3–6 months) both boys and girls in Budapest and the villages are underrepresented. These infants' families were the most difficult to reach.

2.5. Sample

Table 3 shows the socio-demographic characteristics of the 980 children whose mothers and, in certain cases, fathers were questioned. In *Table 3* we included both the weighted and unweighted values. As expected from the weighting, the biggest difference concerns the distribution of the youngest age group: in the weighted sample it is almost twice as much as in the unweighted one. In the weighted sample, children's age groups are equally distributed; the average age of the children is 19.6 (SD = 9.6) months. The rate of boys is a bit higher than that of the girls (51.5 versus 48.5 %). One-third of the families live in Central Hungary, of which about half (15.4 % in total) live in the capital, Budapest. Out of the 980 children, only 5 are non-blood children of the families in the sample.

Table 3
Descriptive background characteristics of the children – both weighted and unweighted values
(N = 980)

		Weighted		Unweighted	
		N	*valid %*	*N*	*valid %*
Age	3–6 months	120	12.2	68	6.9
	7–12 months	160	16.4	154	15.7
	13–18 months	179	18.3	187	19.1
	19–24 months	166	17.0	192	19.6
	25–30 months	183	18.7	200	20.4
	31–36 months	171	17.4	179	18.3
Gender	boy	504	51.5	524	53.5
	girl	476	48.5	456	46.5

		Weighted		Unweighted	
		N	valid %	N	valid %
Region	Central Hungary	302	30.8	314	32.0
	Central Transdanubia	113	11.6	107	10.9
	Western Transdanubia	75	7.7	74	7.6
	Southern Transdanubia	85	8.7	84	8.6
	Northern Hungary	132	13.5	131	13.4
	Northern Great Plain	152	15.5	153	15.6
	Southern Great Plain	120	12.3	117	11.9
Settlement type	Capital (Budapest)	151	15.4	171	17.4
	County seats	205	20.9	202	20.6
	Other towns	298	30.4	290	29.6
	Villages	326	33.3	317	32.3
The legal status of the child	Child by blood	975	99.5	975	99.5
	Adopted child	2	0.2	2	0.2
	Fostered child	2	0.2	2	0.2
	Other	1	0.1	1	0.1

Table 4 shows the socio-demographical indices of the parents. In the case of the mothers, we included both the weighted and unweighted values. Unlike in the children's sample, there is no meaningful difference in the case of the mothers. Every second mother is 30 years old or younger, the average age is 30.3 (SD = 5.3) years. 72% are married, and another 22 % has a live-in partner. The rate of single mothers is 3.6 %. The majority of the mothers with children under 3 years have secondary education, one-tenth has a very low level of education (elementary) and on the other hand, almost one fifth has a university degree.

Table 4
Descriptive background characteristics of the parents
– for mothers both weighted and unweighted values

| | | Mothers (N= 980) | | | | Fathers (N=122) | |
| | | weighted | | unweighted | | unweighted | |
		N	valid %	N	valid %	N	valid %
Age	18–30 years	530	54.1	533	54.4	52	42.6
	31–40 years	420	42.8	416	42.4	57	46.7
	41–52 years	30	3.1	31	3.2	13	10.7
*Marital status**	Married	701	71.8	706	72.2	80	65.6
	Cohabited	216	22.1	212	21.7	41	33.6
	Single	36	3.7	35	3.6		
	Divorced	25	2.5	25	2.5	1	0.8
*Education**	Elementary or less	113	17.8	111	11.3	10	8.2
	Vocational	220	22.5	224	22.9	45	37.2
	Secondary	469	47.9	464	47.4	51	42.1
	Degree	176	18.0	179	18.3	15	12.4
*Employment status**	Inactive	862	88.0	850	86.8	1	0.8
	Employed (36 hours/ week)	74	7.6	82	8.4	117	95.9
	Employed (less than 36 hrs/week)	43	4.4	47	4.8	4	3.3
Total number of children by blood	None	4	0.4	4	0.4		
	1 child	617	62.9	622	63.5	81	66.4
	2 children	236	24.1	231	23.6	27	22.1
	3 children	86	8.7	84	8.6	8	6.6
	3+ children (4-10)	38	3.8	39	4.0	6	4.9
*Ethnicity**	Hungarian	930	95.1	930	95.1	117	95.9
	Roma	44	4.5	45	4.6	5	4.1
	Other	4	0.4	3	0.3		
*Religion**	No religion	577	60.3	571	59.8	70	58.3
	Catholic	29.5	276	282	29.5	39	32.5
	Other Christians	101	10.6	100	10.5	10	8.3
	Other	2	0.2	2	0.2	1	0.8

*   In case of missing data, valid percents (i.e. frequency of respondents) is indicated

Almost 10 % of mothers are employed and work full time. The rate of large families is 12.5 %, the rate of those who identify themselves Roma is about 5 %, and almost two-thirds of the mothers are not religious.

The average age of the fathers is 32.7 (SD = 6.0), the vast majority of them (97.5%) work full time. The proportion of fathers with secondary education (mainly vocational school) is higher than that of women.

2.6. Objectives and expected outcomes

As a comprehensive hypothesis of the research, we suggest that parent-infant/toddler interactions during everyday care are primarily affected by the parents' capacity to be intuitively and/or consciously sensitive and their ability to recognize and meet the needs of the child, especially at different expected developmental milestones. Parents having additional challenges (see socioeconomic, individual, relational, familial or children's biological features, difficult temperament, etc.), can negatively affect the caregiving behaviour and parent-child interactions, such as the evolving parent-child relationship and mental health of young children (see also *Figure 1*).

Quantitative statistical analyses and publications on the following topics are planned:

• We can do detailed psychometric work on the validation and standardization of several measurements in our representative database. The new standardized measurements will become available for further research and clinical work supporting screening, early detection and diagnostics.

• The descriptive statistics of different constructs can help us examine the natural variability, diversity in specific issues of parenting, early childhood development and mental health in Hungary.

• We will also be able to define the representative cut-off values of the used instruments so that we can separate the groups of children in clinical ranges from the natural variance. Thus we obtain data on the incidence of significant infant and early childhood mental health difficulties and other problems according to the background factors.

• We will have the opportunity to draw a picture of the relationships between complex environmental effects in the background of early childhood mental health problems. Given the cross-sectional nature of the research, we will have the possibility of exploring correlations and some (assumed causal) relationships over time using retrospective questions. Our goals are finding direct and indirect, mediator and moderator explanatory effects based on correlations and the analysis of hypothetical longitudinal reasoning based on retrospective interviews. Assumptions of causal relationships can be tested later in a longitudinal follow-up design.

The database will be inspiring not only for researchers interested in the main focus (IECMH) but for those who examine many other interdisciplinary (health, sociology, psychology, education, special education, etc.) questions in child and family

issues. Our data can be compared to international results, so Hungarian researchers will be able to join the international discourse of early childhood mental health disciplines.

3. Future plans

3.1. Examining special groups

We intend to visit and collect data from other samples, from parents of more specific groups of children, as early childhood mental health problems can be secondary symptoms if the parent-child relationship is difficult because of different (biological or social) reasons. As the proportion of specific groups (excluding social disadvantage) is expected to be very low in our representative community sample, it is necessary to collect data from extra samples. Thus we are planning to identify new samples from the following target groups:
- Socio-economically disadvantaged parents (e.g., low level of education, poverty, ethnicity)
- Psychologically disadvantaged parents (e.g., anxiety, depression, alcohol, drugs)
- Parents of biologically disadvantaged children (e.g., premature children, chronically ill children, sensory impaired children, and children with the injured central nervous system or showing atypical development)
- Adolescent parents, adoptive and foster parents

In these special groups' daily interactions, child-rearing practices and family functioning can be different from the general patterns, but the representative sample would be insufficient for the detection of these processes since most of the special groups will have a small sub-sample size in the representative sample.

3.2. Cross-cultural comparisons

Our empirical results can be compared with international ones already published. We also seek interested researchers from other countries who would like to include our questionnaire package or a part of it in a study examining a representative sample of young children and their parents in their own country. We have adapted many measurements from English without any changes, while some instruments have been shortened according to psychometric analyses. In a possible collaboration, these aspects should be kept in mind, however, we still consider the data obtained in our sample to be worth comparing. Joint analyses of related national representative data can map the cultural characteristics of the frequency and background mechanisms of early childhood mental health problems.

3.3. Longitudinal research

We plan to continue our research longitudinally in 2022–2023 with parents of children aged 3–6 years (preschoolers) including families who agreed to be approached in a later wave of the research. A longitudinal sample would be able to map real causal relationships and explanatory mechanisms behind the development of early childhood mental health problems.

4. Strengths and limitations

The main strength of the research is that it is the first representative national parent survey to examine the mental health of children under 3 years of age in Hungary. Besides a large sample of mothers (n = 980), we have also a dyadic subsample (n = 122). The questionnaire package was developed by an interdisciplinary team, which included 31 researchers and practitioners representing several disciplines and clinical fields. Thus, our research is not only suitable for mapping basic issues, but it is also translational research, which creates a bridge between theory and practice. When developing the questionnaires, we asked the target group (i.e., parents) about their opinions, so the development of the package was partly a participatory process.

There are some limitations to the research. One of them is possible fatigue and refusal to answer due to the long questionnaire. Additionally, we asked several retrospective questions and thus memory biases may play a role. Due to financial constraints, the number of fathers is only approx. 12% of mothers. Furthermore, there is some selection bias in the way fathers were selected. These fathers are all present in the child's life – that is, divorced couples were not included in the sample. Mostly those fathers were interviewed who were at home when the maternal interview was taken. Thus, the sampling of fathers, although stratified, is less random.

Due to the Hungarian data protection regulations, which prohibits the release of data for infants younger than 3 months, the first few months of the children's lives were not included in the study.[10]

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APPENDIX

Table A.1
Distribution of the population aged 3–36 months in January 2020, based on data
from the Ministry of the Interior (TÁRKI 2020)

	Male			Female			Total
	Budapest	*Town*	*Village*	*Town*	*Budapest*	*Village*	
3–6 months	2623	8514	5590	2431	8045	5306	32509
7–12 months	3575	11446	7346	3314	10815	6973	43469
13–18 months	3857	12770	8381	3575	12067	7957	48607
19–24 months	3649	11912	7641	3381	11257	7254	45094
25–30 months	3945	13053	8528	3657	12335	8096	49614
31–36 months	3610	12325	7835	3346	11646	7439	46201
Total	21260	70020	45321	19703	66165	43025	265494

Table A.2
Weights' value for each cell used for sample weighting based
on the data provided by the Ministry of Interior

	Male			Female		
	Budapest	*Town*	*Village*	*Budapest*	*Town*	*Village*
3–6 months	2.42	1.16	2.29	2.24	1.86	2.45
7–12 months	0.82	0.94	0.80	0.87	1.25	1.98
13–18 months	0.62	0.94	0.86	0.94	1.44	0.89
19–24 months	0.96	0.85	1.04	0.78	0.85	0.79
25–30 months	0.91	0.79	0.93	0.71	1.11	1.03
31–36 months	1.03	1.20	1.16	0.69	0.86	0.78