Mental Health Assessment in One Cluster of the Primary Care Development Model Programme in Hungary

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Abstract

Introduction. Primary health care is the foundation of health systems. A renewal of primary health care has been due in many countries because of a number of contemporary challenges such as ageing of the population, increasing demands for health services, shrinking and ageing GP workforce. A model programme for primary health care development with a focus on public health was implemented in Hungary in the framework of the Swiss-Hungarian Cooperation between 2012 and 2017. Four group practices (GP clusters) were established in 2013 in geographical regions with sizable disadvantaged population groups. They provided a wide range of services such as health status assessment, medical risk assessment, chronic care, lifestyle counselling, and health promoting community programmes. The paper presents data of the mental health assessment in one of the 4 GP clusters. *Methods.* All adult patients of the Borsodnádasd GP cluster were invited for health status assessment the protocol of which was developed according to a national health decree and international guidelines. Mental health assessment included the abbreviated Beck Depression Inventory (BDI) and the 12-item General Health Questionnaire. Data from 5238 adults were collected between November 2013-June 2016 and analysed by the major social determinants of health (gender, education, subjective income status). *Results.* Mean age of the assessed cohort was 47 years (SD: ± 18 years), 54.9% of them were women; 60% had at most primary education, and 28% judged their income as bad or very bad. Altogether 6% of all participants, and significantly more females compared to males were at high risk of depression (moderate or severe depression) (8% vs. 5%, p < 0.001). Depression was significantly related to educational status; the proportion of depressed decreased in higher educational categories. The number of depressed females was at least 1.8 times higher in all but one educational category compared to males. Depression was also significantly related to subjective income status but in a less straightforward manner. The proportion of those at risk of depression increased as subjective income level decreased but those in the lowest income category had a much lower proportion at risk compared to what was expected. 6.8% of the respondents were found to be distressed with a significant sex difference: twice as many women were distressed compared to males (8.8% vs. 4.3%, p < 0.001). Psychological distress was significantly related to educational status only in females but not in males. Distress was significantly related to subjective income status in gradient-like manner in both sexes. The proportion of highly distressed adults increased among those with worse subjective income levels. *Conclusions.* Mental health assessment and monitoring social inequalities of mental health should be part of population-based screening in primary care.

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ABBREVIATIONS

BDI: Beck Depression Inventory
ELEF: European Health Interview Survey
GHQ: General Health Questionnaire
GP: general practitioner
MCP: multispecialty community provider
PHC: primary health care
SD: standard deviation
WHO: World Health Organization

INTRODUCTION

Primary care – the fulcrum of health systems

Primary health care (PHC) is the fundamental type of health care provided to individuals, families and communities at an affordable cost. The Declaration of Alma-Ata in 1978, the first internationally accepted document spelled out the importance of primary care along with the types of services that should be made available by primary care providers. These services were quite far-ranging, and included promotive, preventive, curative and rehabilitative services along with health education, promotion of food supply and nutrition, basic sanitation, immunization, prevention and control of locally endemic diseases and even the provision of essential drugs, among others (Declaration of Alma-Ata, 1978). The Declaration called for a systematic integration of public health („community medicine" in US parlance), (Abramson and Kark, 1983) and primary health care (PHC) in a coordinated manner.

However, this far-ranging vision had not been fully implemented even in developed countries due to its resource requirements and to the fact that the spectrum of health needs have been widely different between and within various populations (Walsh and Warren, 1979).

A major turning point regarding global health for all people was signalled by the acceptance of the Ottawa Charter (1986) that suggested strategic actions at the decision-making level (developing public health policies, the creation of supportive environments), at the community level (strenghtening community actions and developing individual skills) as well as at the level of the health system (reorienting health services) as means that can promote health in an integrated manner. The Ottawa Charter re-interpreted the vision for health of the Alma-Ata Declaration and provided a feasible model for integrating public health and health care by widening the responsibility for health so as to include communities besides health care services, and also the means by which health can be promoted.

An early example of integrated community and primary health care had been realized in Israel where community medicine was integrated into existing primary care practices with encouraging results (Kark and Kark, 1983).

Another early experiment for the reorientation of primary health care had been carried out in the UK from 1990 when general practitioners (GPs) were contracted so as to measure their performance, and were allowed to take on responsibilities for commissioning services for their patients. This scheme was abolished in 1998 but policy-level experiments continued in order to better integrate GPs into the health system and to encourage collaborative work with other health professionals (Mannion, 2011). Comprehensive evidence was published in the late 1990s showing that strong primary care orientation of a health system tends to be associated with positive health indicators (Starfield, 1998).

Implementation of the integrated vision for health was further facilitated by the World Health Report 2000 that provided a framework for the relations between functions and objectives of a health system, including among others, responsiveness to non-medical expectations of populations as an objective *(Fig. 1)*. As the Report specified, emphasis should be on the overall results of the health system as a whole that includes the best attainable average level of health (*goodness*) with the smallest feasible differences among individuals and groups (*fairness*) (World Health Report, 2000).
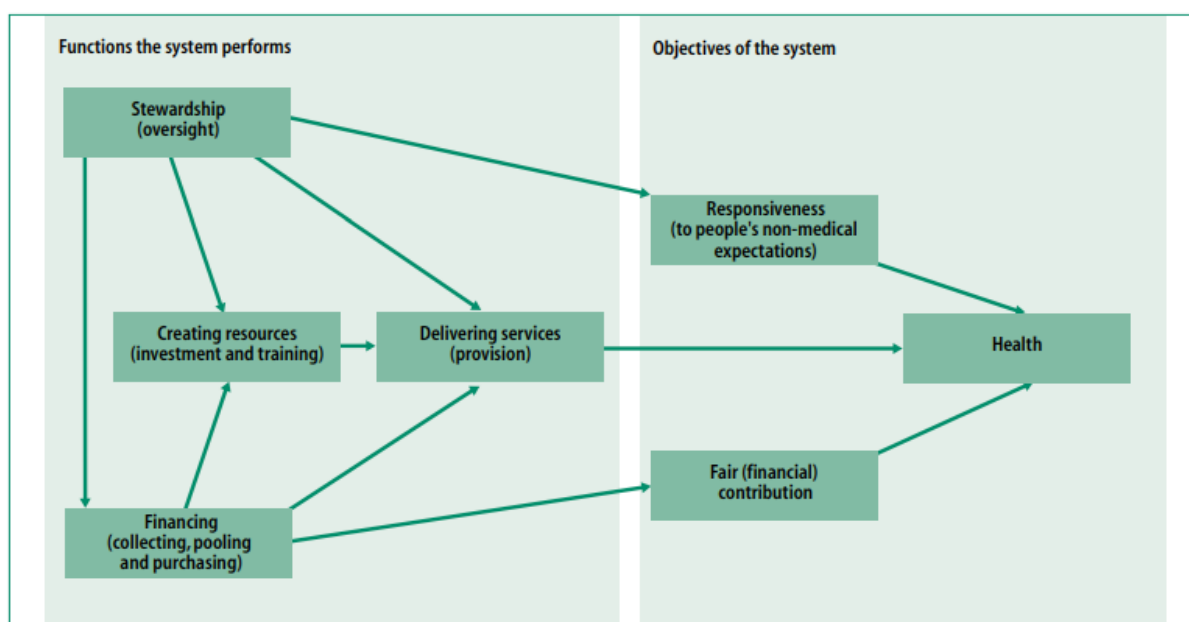

Figure 1. Relations between functions and objectives of a health system. Source: World Health Report 2000. Chapter 2

A large-scale project of the OECD between 2001-2006 also contributed to health care reform, including primary health care by developing a comprehensive set of health care quality indicators grounded in a conceptual framework (Kelley and Hurst, 2006). The indicator set was necessary for measuring performance in order to compare output and outcome between current and reoriented PHC.

The World Health Organization dedicated another World Health Report in 2008 to the necessary renewal of primary health care, detailing the challenges that PHC has been facing in the beginning of the new century in the form of unequal economic growth among countries resulting in diverging health outcomes; globalization, urbanization and the ageing of populations; continued focus on hospitals and tertiary care as well as specialist care; specialist-driven attention on individual diseases, and unregulated commercialization that is driving health care costs upwards (WHO, 2008) *(Fig. 2)*.
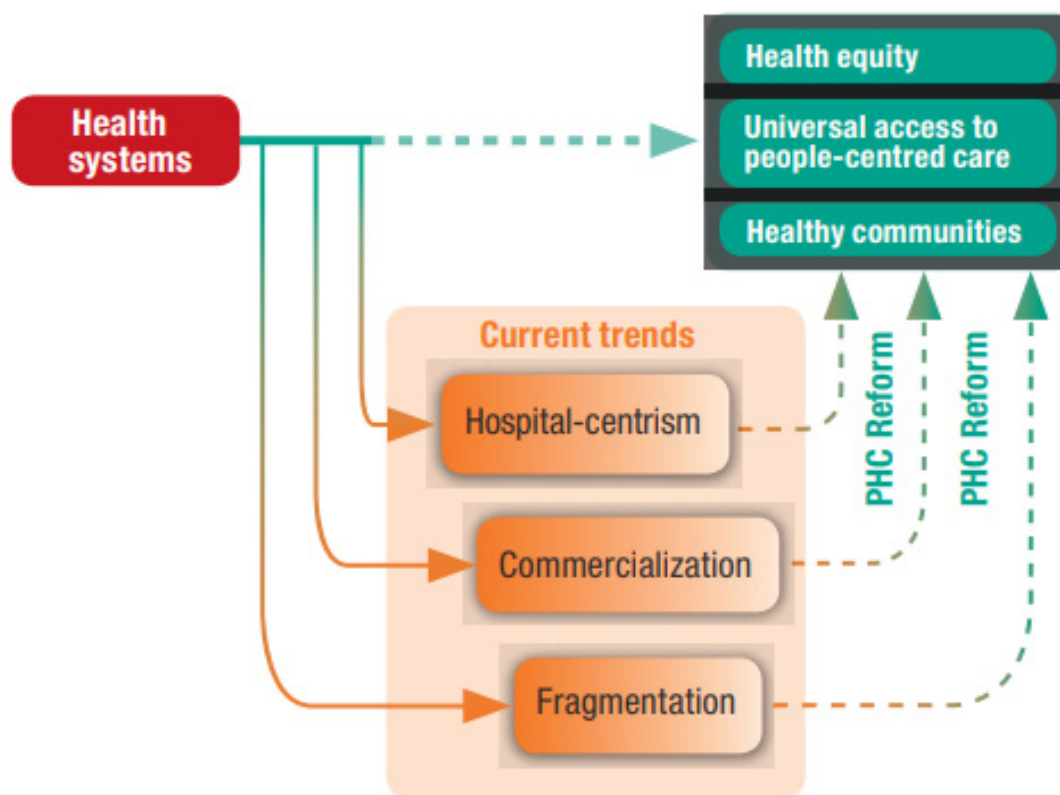

Figure 2. How health systems are diverted from core values of primary health care Source: World Health Report 2008. Chapter 1.

Primary health care in Hungary

The provision of primary care in Hungary has been the responsibility of municipalities that organize GP services, maternal and child care, dental care, emergency and out-of-hours services, chronic care and school health services. Local governments designate primary care districts with at least 1200 residents over the age of 14 years by covering the jurisdiction of the local government. Primary health care is financed by the National Health Insurance Fund. Hungarian

citizens must participate in the health insurance system; contributions and coverage depend on age and employment status. Several reforms with various aims (to introduce managed competition, to regulate capacity) were attempted since 2004 with no lasting success (Gaál et al., 2011). Ownership of general practices was made available from 2006 onwards for GPs that resulted in the overwhelming majority of GPs to become self-employed in single-handed practices.

However, a number of shortcomings characterized the health care system of the country, such as underperformance – a rather poor population health status mismatching the economic performance of the country (Ádány, 2003; Kopp and Kovács, 2006) so-called „gratitude payments" or informal out-ot-pocket donations to service providers (Gaál and McKee, 2006) that developed decades ago (Kornai, 2000) and underfunding that has not only been below-average compared to OECD-countries but also quite volatile in the past decade (OECD, 2014). Specific problems of primary care have included the uneven distribution of practices; decreasing numbers and increasing mean age of working GPs; and increasing proportion of vacant posts (Political Capital, 2017)

The Primary Care Development Model Programme

A rare opportunity to re-orient the health care system emerged in 2006 when Switzerland committed 1 billion CHF to help reduce the economic and social disparities in the 10 new EU member states (Swiss Confederation, 2016). Of this amount, 131 million CHF (the third largest sum) was allocated to Hungary in the framework of the Swiss-Hungarian Cooperation Programme defining 5 thematic and 2 geographical focus areas (Swiss-Hungarian Cooperation Programme). The Swiss and Hungarian Governments designated agencies for the implementation of the Co-operation Programme. The Hungarian agency issued calls for project proposals in 9 specific priority areas between 2008 and 2012, and approved altogether 39 project plans for implementation (Contribution of Switzerland). One of the priority areas (No. 8) was dedicated to the development of human resources and society in which the call for proposals was issued in 2011. The winning proposal delineated a new model of community-oriented primary health care programme focusing on public health and disease prevention to be implemented in four GP clusters in four geographical areas (Berettyóújfalu, Borsodnádasd, Heves, Jászapáti) between 2012 and 2016.

The programme titled „Public Health Focused Model Program for Primary Care Development" aimed at testing a new model of community-oriented primary care and providing evidence to the large-scale restructuring of the health care system in Hungary. The new model (Adány et al., 2013) extended primary health care both in terms of its human resources (Kósa et al., 2013) as well as its services (Sándor et al., 2013). The model programme was based on the principles recommended by WHO, that is, reforming service delivery, public policy and leadership (WHO, 2008).

Extended services include systematic and scheduled health examination for all clients of family doctors regardless of care history; risk assessment followed by individual or group care – including physiotherapy, nutritional and/or psychological interventions, health education and/or

referral and chronic care if needed based on the result of health examination. In addition, community based health promoting programmes were offered on an ad-hoc or regular basis in each involved settlement that were selected so as to involve cities and villages with high proportions of disadvantaged, mostly Roma population groups in economically disadvantaged small areas.

Health status assessment in the Model Programme

Health status assessment as a new service in primary care followed a newly developed protocol that was based on a progressive decree of the Ministry of Health prescribing age-specific screening in primary health care (Ministry of Health, 1997) at the request of patients. All clients registered with participating GPs were invited for the assessment in the Programme. Risk factors of the most important chronic diseases, substance use, existing chronic diseases, nutritional status, physical inactivity, and mental status were assessed by a self-filled questionnaire, followed by anthropometric measurements and evaluation of basic cardiovascular status.

Objective

The aim of our publication is to present the results of the mental status assessment in one location of the Programme stratified by demographic and socio-economic status.

METHODS

Data collection

Data of the health status assessment were collected in one of the four participating GP clusters (Borsodnádasd) between November 2013 and March 2016. The Borsodnádasd cluster included GPs of Borsodnádasd as well as neighbouring Arló, Járdánháza, and Borsodszentgyörgy. All adults (above the age of 18 years) registered with GPs in the cluster received a written invitation to attend the health status assessment. All clients were briefed about the purpose and methods of assessment and were asked to provide a written consent for participation.

Data collection was carried out by a team comprising the public health coordinator (who was responsible for all non-medical personnel, and directing the assessment), the practice nurse, the public health expert, and health mediators (mostly Roma persons from the local community with vocational training).

Health mediators delivered the invitations for health assessment, and played an indispensable role in persuading those (mostly disadvantaged) persons to attend who disregarded the letter-based invitations. Paper-based questionnaires were handed over to those who showed up by the public health expert who was also available for help if requested. Physical examination and biological sample collection (blood, urine) were carried out by the practice nurse.

Questionnaire

The questionnare asked for demographic information such as age, sex, educational attainment, subjective income status, number of persons in the household, family status. Another set of questions related to risk factors of diseases and diagnosed conditions and chronic diseases. Mental status was examined by the Hungarian version of the abbreviated Beck Depression Inventory (Rózsa et al., 2001) consisting of 9 items (BDI-9), and the abbreviated Hungarian version of the General Health Questionnaire consisting of 12 items (GHQ-12) (Balajti et al., 2007).

Evaluation of mental status

The BDI-9 was evaluated by summarizing the points of each statement, subsequent to which participants were allocated to one of each risk categories as follows: 0-9 points: no depression; 10-18 points: mild depression; 19-25 points: moderate depression; ≥ 25 points: severe depression. Those in the latter two categories were considered at risk of depression (Rózsa et al., 2001).

The GHQ-12 has been used for the estimation of the prevalence of pathological stress in the population (Goldberg et al., 1997). Its items inquire about the actual affective status and behavioral symptoms of the respondent. Responses to all items of the GHQ-12 were first summarized, then converted into a binary variable as usual when the GHQ scale is used for screening. The threshold of 4 points was used as in other Hungarian studies (Balajti et al., 2007; Bíró et al., 2016). Those who achieved 0-4 points were not abnormally stressed, while those achieving 5 points or more were considered to be distressed.

Data processing and analysis

Continuous variables were characterized by mean and standard deviation and compared by t-test. Categorical variables were described by their distribution, and compared by chi-square test and variance analysis. Data processing was carried out by Stata 13.0.

RESULTS

Demographic variables

Altogether 5238 adults participated in the health status assessment during 29 months of whom 54.9% were females (2878 persons). The lowest age was 18, the highest age was 98 years; the mean age of participants was 47 years (SD: ± 18 years). Participating women were significantly, 3.3 years older compared to men (females: 48.7 years [SD: ± 18.8 years] vs. males: 45.4 years [SD: ± 17.7 years], p < 0.001). The largest participating cohort (33.3%) belonged to the age range of 45-64 years followed by the 25-44 year-olds (32.4%). 20.2% of all participants were above the age of 65 years. The least number of attendees belonged to the 18-24 year-olds (14%).

Married persons created the largest group by family status both among females (45.5%) and males (51%). Of the singles, 13% were females and 16.3% were males. There were 6 times more widowed females compared to males (10.8 vs. 1.8%). Less than 5% were divorced, and less than 1% were separated in both genders. However, 9.2% of attendees did not reveal their family status.

Educational attainment was quite low: 60% of respondents had at most completed primary education, and only 5% completed higher education. Of the remainder, 19% graduated from high school and 77% had other mid-level qualification. A significantly higher proportion of females had higher qualification compared to males (p < 0.001).

Income satisfaction was used as a proxy for income. The response rate was over 97% for this question. The majority of respondents (58%) were satisfied with their income, whereas almost 28% judged their income as bad or very bad. Less than half, 13% thought that their income was good, and no-one identified themselves as having a very good income status.

Mental status – depression

94% of participants answered the Beck Depression Inventory. The mean score was 11.8 points (SD: = 3.6, min: 9, max: 36 points). Females scored significantly, 0.7 points higher compared to males (p < 0.001). One-third (34.3%) of the clients had no symptoms of depression; a significantly higher proportion of men belonged to this category compared to women (p < 0.001). The proportion of women was higher in all other categories but the difference was significant only in the „moderate" category (p < 0.001) *(Figure 3)*.
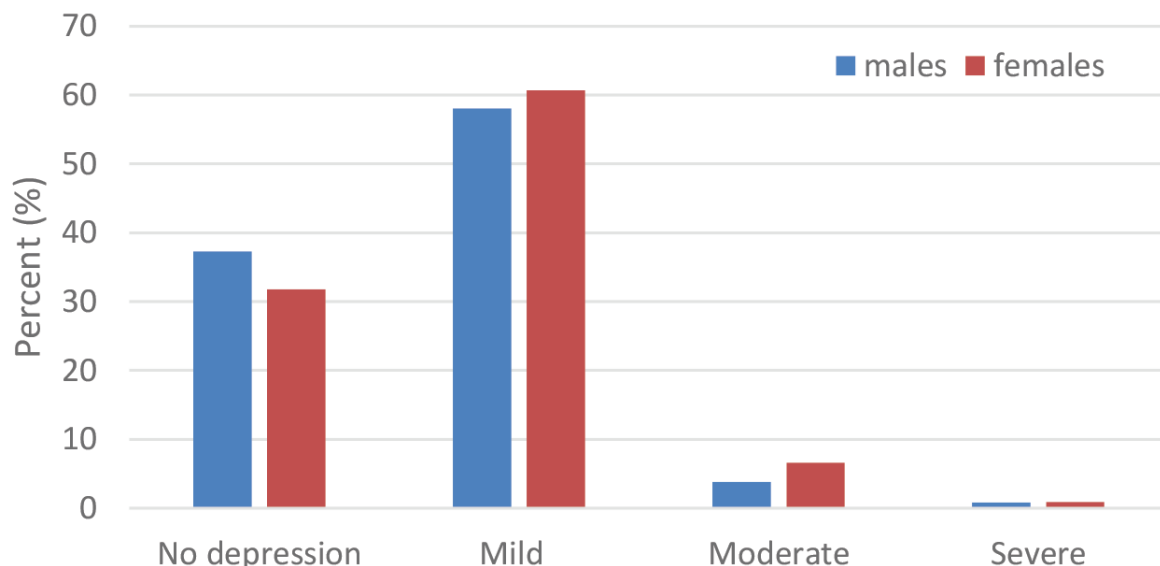

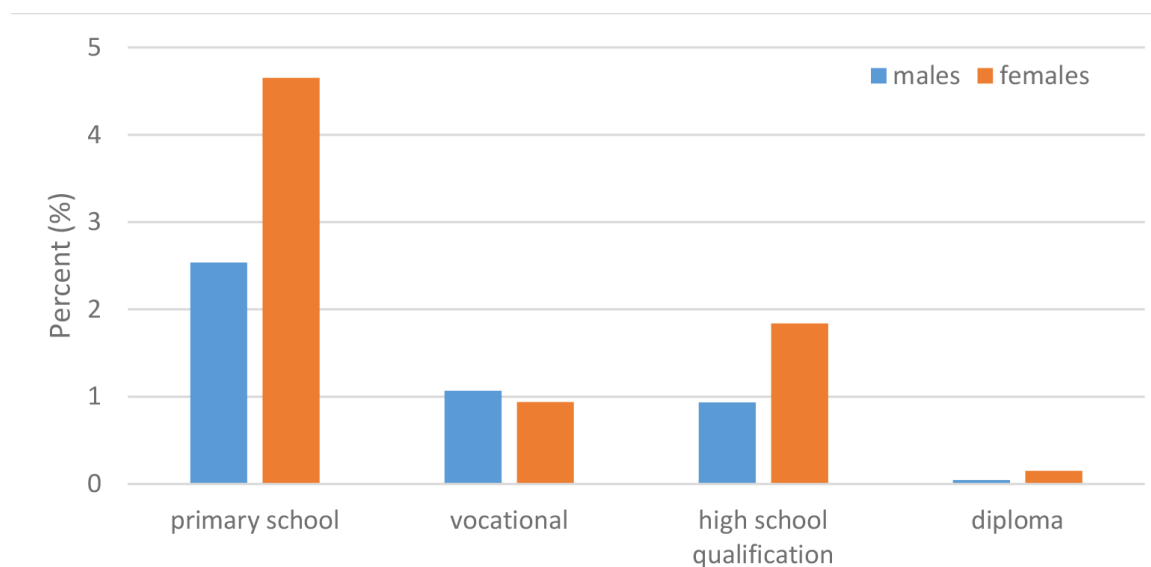*Figure 3. Severity of risk of depression by sex*

Figure 4. Distribution of those at high risk of depression by educational status and sex

Altogether 6% of all participants (5% of males and 8% of females) were at high risk of depression, scoring above 18 points as described in Methods.

Depression by educational category revealed a graded pattern *(Fig. 4)*. The proportion of depressed decreased with higher educational attainment. Among those with primary education, the proportion of depressed was 36 times higher compared to those with higher educational diplomas (181 vs. 5 persons), and 3.7 times higher compared to those with vocational training (mid-level education without high school qualification). The number of depressed females was at least 1.8 times higher in all but the vocational educational categories compared to males. The chi-square test revealed significant association between educational level and proportion of depressed ($p < 0.001$). Depression was also related to subjective income status. However, the relationship was not straightforward in terms of being graded. The proportion of depressed increased from the „good" to the
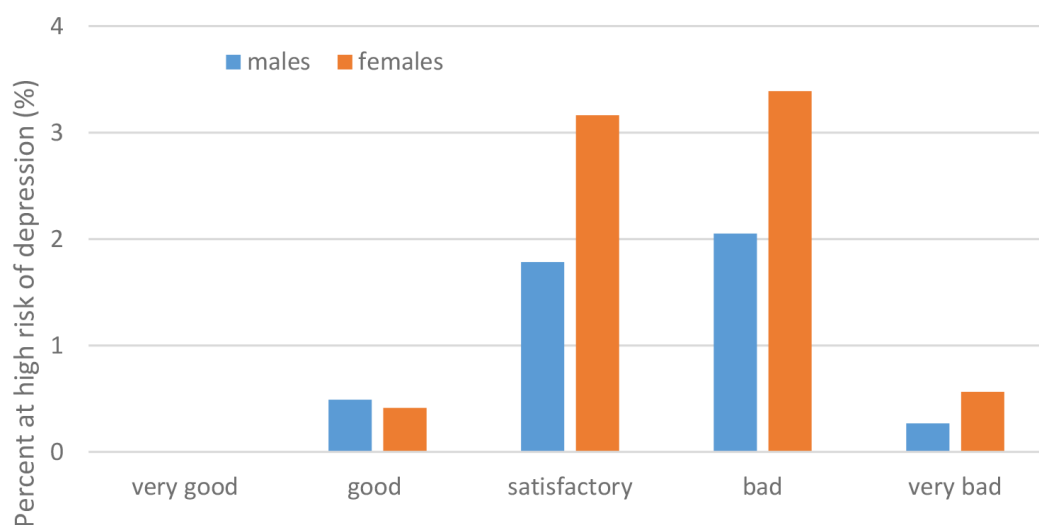

Figure 5. Distribution of those at high risk of depression by income category and sex

„bad" income status. Surprisingly, only half as many males were at high risk of depression in the „very bad" income category as in the „good" category, though the ratio was reversed for women of whom were 1.3 times higher at risk of depression in the „very bad" compared to the „good" income category *(Figure 5)*. The number of females at high risk of depression was higher than males in the three lowest income categories. As it was mentioned above, no-one claimed to have a „very good" income status among the clients of the Borsodnádasd GP cluster. Nevertheless, the chi-square test revealed a strongly significant association between depression and income ($p < 0.001$).

Mental status – stress

94.6% of participants provided answers for all items of the GHQ-12 scale. 6.8% of the respondents were categorized as distressed with a significant sex difference: twice as many women were distressed compared to males (8.8% vs. 4.3%, $p < 0.001$). The percent of distressed persons showed a graded relationship with education *(Figure 6)*.
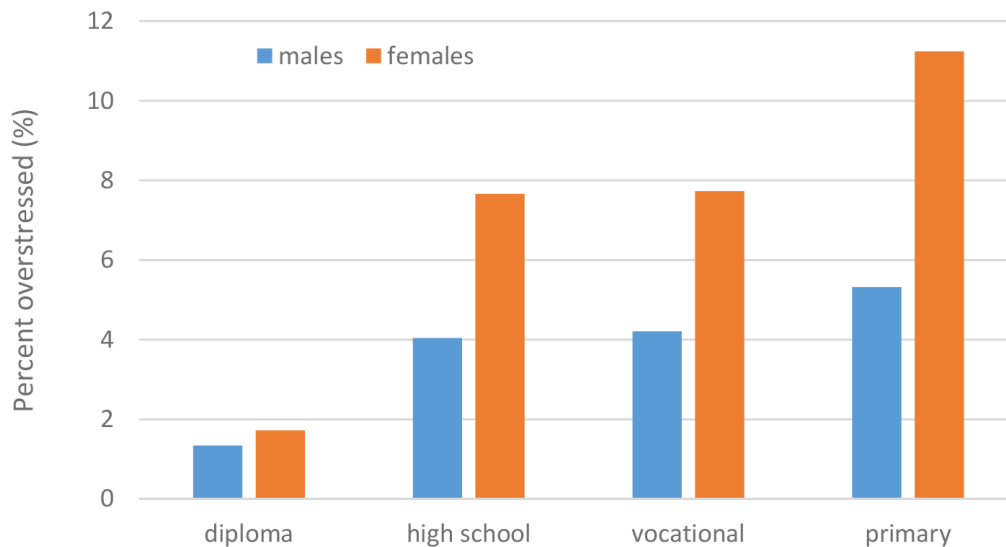

Figure 6. Distribution of distressed persons by education and sex

The proportion of highly stressed persons decreased from the lowest to the highest educational category though it was not significantly different between those with vocational training and high school diploma. The number of distressed females exceeded that of distressed males in each educational category. The ratio of distressed females and males ranged from 1.28 (among those with diploma, lowest) to 2.11 (among those with primary education only, highest). The chi-square test for the relationship between the percentage of distressed by educational status was significant for females ($p < 0.001$) but not for males ($p = 0.164$).

The distribution of distressed persons was also related to subjective income status in a clearly graded manner *(Figure 7)*. The percent of distressed was highest in the lowest income category among males and females alike, and gradually decreased in the categories reflecting better subjec-

tive income status (except for the „very good" category, due to not having any respondents). There were approximately twice as many distressed females compared to males in each income category.
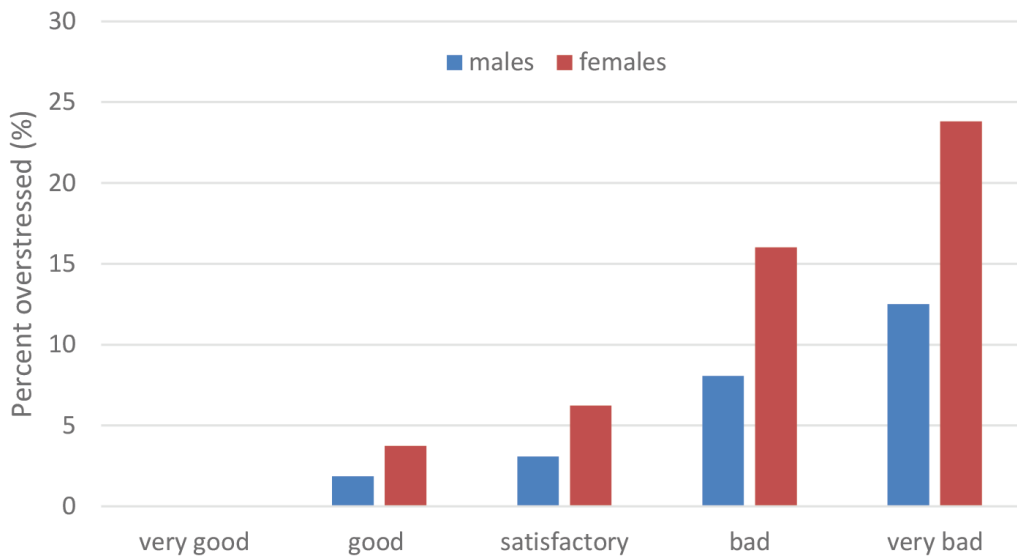

Figure 7. Distribution of distressed persons by subjective income status and sex

The chi-square test revealed a strongly significant association between excessive stress and income among males and females alike (p < 0.001 for both genders).
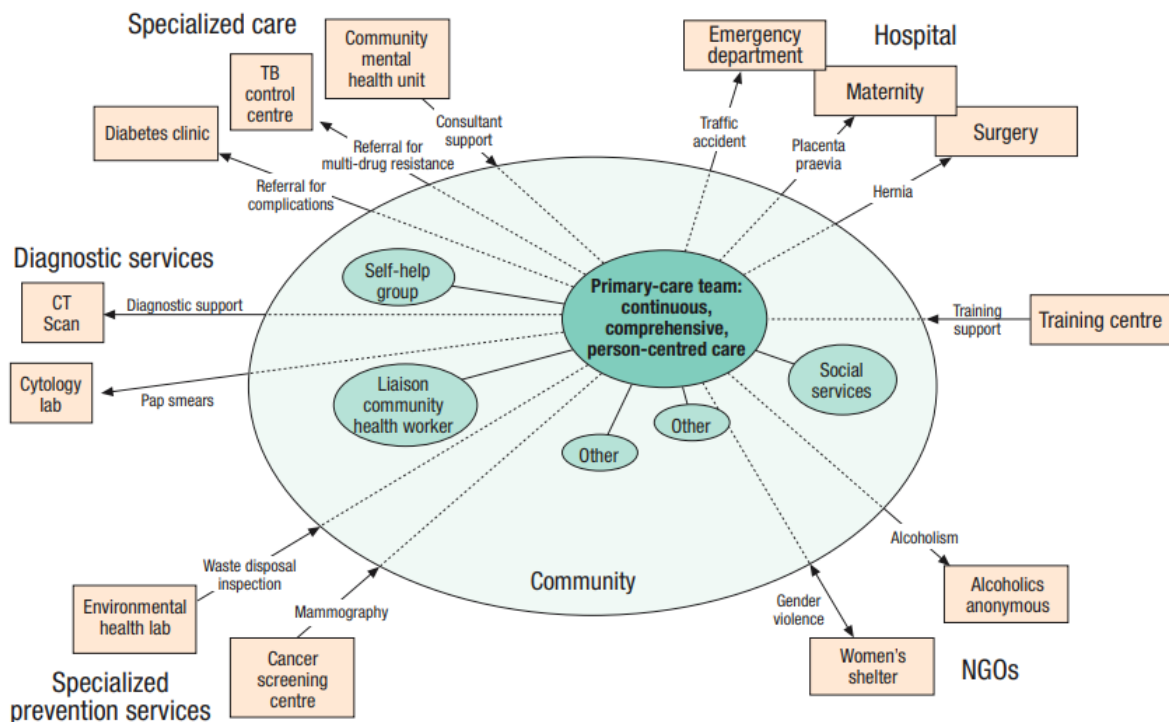

Figure 8. Primary care as a hub of coordination: networking within the community served. Source: World Health Report 2008. Chapter 3.

DISCUSSION

Health status assessment as a new service of the GP cluster of Borsodnádasd proved to be very successful. Of the four GP clusters, this one produced the highest participation rate of 85% (Final Report, 2017). An average of 8 participants were assessed during the workdays of 29 months that was made possible by the collaboration of the practice nurse, public health expert and health mediators supervised by the public health coordinator proving that well trained non-medical professionals can carry out important primary services alleviating the workflow of GPs.

Collaborative work in primary care has already been proposed by the World Health Report 2008 suggesting primary care as a hub of coordination *(Fig. 8)*.

The UK has made great stride towards collaborative work in its landmark report „General Practice Forward View" published in 2016 in which various hub models were specified for collaborative work: federations, hubs, multispecialty community providers (MCPs) and super-practices (NHS England, 2016). The Primary Care Model Program might be considered as closest to the MCP model, well worth for wider implementation.

Results of the mental status assessment showed that both the risk of depression and the prevalence of psychological distress is higher among women compared to men. This allows the conclusion that the mental status of females in the Borsodnádasd GP cluster, similarly to other populations, seems less favourable compared to that of males.

The risk of depression and distress both showed gradient-like decrease with increasing levels of education in females. However, high distress was not related to educational level in males. The risk of depression and high distress also displayed gradient-like decrease in better subjective income categories. However, surprisingly, the proportion of those at risk of depression was the lowest among males in „very bad" income status, and only slightly higher among females in the same income category compared to those with good incomes.

Female sex (Boyd et al., 2015), low educational level and low income (Silva et al., 2016) have all been known determinants of mental health in the international literature. Representative data from the European Health Interview Survey 2014 of Hungary (ELEF2014) showed similar, gradient-like distribution of mental health by socio-economic status (Bíró and Kósa, 2018). However, the sex-specific impact of education and subjective income found in this analysis merits further attention, considering the fact that disadvantaged groups of Hungarian society were overrepresented at this health status assessment.

The percent of those in the Borsodnádasd GP cluster at high risk of depression (6%) can be directly compared to data from the latest Hungarostudy survey due to the fact that Hungarostudy used the same tool to identify the risk of depression that was used in the health status assessment. Hungarostudy data from 2013 (Susánszky and Szántó, 2013) revealed that 16.7% (2.7 times more persons) were at high risk of depression in the Hungarian adult population compared to those in the Borsodnádasd GP cluster. The ELEF 2014 survey used a different tool

(PHQ-8) that identified 11% of the adult population to be at risk of depression. Self-reported depression was 5% in the ELEF2014, but due to different methods, these data cannot be directly compared to that found in this analysis.

All in all, it can be concluded that unfavourable mental status is related to socio-economic status, particularly to education and income in a gradient-like and sex-specific manner. Mental health assessment stratified by socio-economic status should be a routine dimension of population-based screening in primary care. However, in light of the recommendations of the Eurostat on assessing mental health, (European Health Interview Survey, 2013) the tools used in primary health care should be revised. Proper assessment and analysis of mental health in primary care can contribute to the development of effective, targeted inverventions; and the monitoring of the mental health of targeted populations will produce data for evaluating and adjusting such interventions in the future.

ACKNOWLEDGEMENT

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