We are at the end of the first semester of the academic year, and I am pleased to update you on what is happening at the school. This year, 115 students started their master degree studies in seven different programs. In addition, there are 20 doctoral students at various stages of their PhD studies in our school.

This year, for the first time, an International program in Public Health is open for foreign students. The studies are conducted in English and are taught over three semesters (Fall, Spring and Summer). The studies concentrate on the management of health systems, with a focus on global health and leadership. Israeli students are invited to join this program as well. In general, the program courses are open to all students in the school. In particular, a number of summer semester courses can be of special interest to our Israeli students. Some of the courses will be taught by foreign renowned guest professors, and you are invited to register. For example, in June, Prof. Fisher from Canada will teach a four day course about sexual health, sexually transmitted diseases and AIDS. Another course will be taught by Prof. Lutzker from the United States about global strategies for maternal and child health. You are invited to join these courses.

The subject of fluoridation of our drinking water is frequently raised in the media, including deliberations about it. Public health officials lead the support of fluoridation, and we would like to raise awareness to this issue in a conference which is free and open to everyone. The conference will take place on the 10th of February, from 14:00 to 18:00, at a Mitzpor in Eshkol tower, with experts taking part and lecturing on the subject. You are invited to register. The conference program, including the registration link, is on the internet school site.

Every year the Council for Higher Education in Israel performs quality evaluations of different fields in the academic world. This year it was
decided to conduct a quality evaluation of Schools of Public Health in Israel. As part of this assessment, the school has to prepare an in-depth report regarding the structure, management, research and teaching quality of the school. The process of preparing this report is an internal quality control for the school. During the next year, an international committee will be set up and visit all the Schools of Public Health in Israel and write a report on each and every school. As part of the process, the school has to present its vision and the strategies to achieve the vision in the future. In addition, graduates will be surveyed in order to learn from former students about their experience and learning process during their studies at the school of public health and how their studies influenced their jobs and career.

The school staff wishes you good luck with the exams and future success in your studies.
I am pleased to inform you that after a year and a half of intensive work the Research Authority and Senate have approved the establishment of a research center for health and risk communication, which I conceived and will head. Health communication is a field that has developed rapidly in the past 50 years, since healthcare professionals began to understand the growing need for more effective communication with a more active and informed audience. Government, health and industry organizations grapple with challenges and dilemmas when they face complex risks in conditions of uncertainty and the need to communicate them credibly to the public. The proposed center will cooperate with diverse stakeholders to address those challenges. The new center is pioneering and unique and will be the first of its kind at an Israeli university. The center will be established at Haifa University as an interdisciplinary platform to promote the research, theory and practice of health and risk communication. The center will include world-renown researchers in health and risk communication, to promote the theoretical and applied research in this field in Israel and the world. Sincerely, Dr. Anat Gesser-Edelsburg
Families receiving disability coverage for children with hearing impairment are subject to the registration of the child in a rehabilitation center. Using this method of sample selection enabled inclusion of children with more severe hearing disabilities yet did not allow for identification of children who are not entitled to a compensation from the national insurance. The study involved a review of files for 867 children with hearing impairment, those born in 2007-2009 (before the national screening program) and those born in 2010-2012 (after the implementation of the national screening program).

It was found that the age of completion for diagnosis and age of first entry to rehabilitation treatment in the population as a whole dropped significantly. Improvement was evident in both the Jewish and Arab populations. Before the national screening program was initiated, median age of diagnosis was 10 months among Arab children which decreased to the age of 5 months after the screening program was offered. The age of Jewish children at the completion of diagnosis dropped from 14 months to 5 months. The median age at entry to rehabilitation treatment for Arab children was 16 months before 2010, and after 2010 dropped to 9 months. Jewish children with a median age at entry to rehabilitation dropped from 23 months to 9 months. The decline in the age at diagnosis and age at entry for rehabilitation was more acute among Jewish children, but the gap between the populations disappeared and indications are clear for the need for decreasing age at diagnosis and age at entry to rehabilitation similar in both groups.

Despite the encouraging findings, the age at diagnosis and age at entry for rehabilitation, 58% of the children did not complete their diagnosis before the age of 3 months, which subsequently delays the start of rehabilitation. Also 66% of the children had not started rehabilitation until age 6 months. We note the limitations of the method with which we chose to evaluate the program; the percent of

Permanent sensorineural hearing impairment is the most common congenital malformation. Early rehabilitation has been shown to improve a child's language skills and justifies implementing a neonatal screening program. The national newborn hearing screening program in Israel was initiated in January 2010. Before the program was nationalized, neonatal hearing screening was conducted in 10 hospitals, mostly in central region and Jerusalem, and even then, not all infants born in these hospitals were screened. Implementation of the program has expanded to the entire population, with special emphasis on the peripheral areas not included in the previous program.

The operational objectives of the program are identical to those operating worldwide: the completion of screening for infants up to one month of age, the completion of diagnosis up until age three months and the beginning of rehabilitation treatment by the age of 6 months. Our department conducted a survey to assess the impact of the program on the age of diagnosis and age at the beginning of rehabilitation. Comparisons were made of children with hearing disorders before and after the national screening program was implemented. The aim was to examine whether the goals are being met, to determine ways to improve surveillance and management of the screening program and determine possible disparities among the different populations. Since a national registry is not yet in place, it was decided to locate children diagnosed with hearing impairment in the 10 rehabilitation centers (including their branches) in the country.
children with hearing impairment we identified is less than the expected 2/1000 births and we are aware that not all children with hearing impairment were included in the study. Those with milder disabilities, with unilateral disorders and those who chose to receive private care, are not represented in our sample, therefore we cannot estimate the full impact of the screening program using this sampling method.

Based on the literature, we know that the number of children lost to follow up after initial screening is the "soft underbelly" of these types of programs, as noted in the US in 2011 only 64% of children who failed the screening tests showed up for subsequent tests (EHDI, 2015). In order to examine the potential barriers for lowering the age at diagnosis and age at entry for treatment for children detected with the neonatal hearing screening programs in the hospital, a telephone survey was conducted on a sample of children who failed the screening as documented in the computerized file of mother & child health clinics. The assumption is that every child who failed the neonatal hearing screening test must pass a further diagnostic test or be rescreened. Transfer of information is extremely important and will ultimately improve parents’ compliance for the children who need further diagnosis and early intervention.

To this end, a structured questionnaire was developed in Hebrew and translated into Arabic (with translation back to Hebrew for validation). We contacted 486 families when their child's age was between 3-7 months old. Of the 405 parents interviewed, questions were asked whether their child's hearing was tested at the hospital, if so, what were the test results, what were their views about the provision of information for the staff, how did they feel about the results, and if follow-up tests were performed. The survey indicates that 3% of parents did not know that their child failed the neonatal hearing screening. For those who understood that their child failed, a quarter reported that not enough time was allowed for explaining the results, and 57% of the parents were worried or very worried after receiving the test results. More than one third had to wait over two months for further diagnostic testing. However 87% of the children survey underwent subsequent testing at the time of the interview. Further analysis of the data will hopefully generate insights and practical implications for the survey findings.

Both of these surveys were conducted through extensive field work in public health research, and in response to the needs of running a large national program. We recognize the need for establishing a national registry which requires resources and legal authorization which are not yet available. These studies enable us to better manage the program in its current form and become better prepared for managing the program in the future.
In the past decade it has become clear that non-alcoholic fatty liver disease (NAFLD) is becoming a major health burden. The etiology of the disease combines genetics, obesity, metabolic alterations and nutrition. Therefore, as epidemiologist and nutritionist I found this topic extremely interesting and have been studying it in different aspects of prevalence, incidence, lifestyle related risk factors and non-invasive evaluation.

Elevated uric-acid is a common feature in patients with obesity and metabolic alterations as diabetes and hypertension. Therefore, elevated uric acid is considered as a marker of the metabolic syndrome and even one of its components. Furthermore, in recent years, although often considered to be secondary to hyperinsulinemia and inflammation, evidence supports a primary role of elevated uric-acid in actively leading to these conditions.

NAFLD is recognized as a leading cause of liver disease, with prevalence in the general population ranging between 20 to 30%. A strong association exists between the metabolic syndrome and NAFLD, which is considered as the hepatic manifestation of the metabolic syndrome. Hyperinsulinemia and inflammation are the cornerstones in NAFLD's pathogenesis.

Interestingly, over consumption of dietary fructose is known to cause fatty liver and in parallel leads to increased serum uric acid levels. Fructose is in fact the only carbohydrate known to increase serum uric acid levels. Therefore, it is possible that part of the liver damage caused by fructose is mediated by increased uric acid following fructose intake.

For these reasons, we hypothesized that there is an association between elevated uric acid and NAFLD. Indeed, in previous studies elevated serum uric-acid levels were demonstrated to be associated with the presence of a more severe liver damage and the development of cirrhosis. However, population based data is scarce and most studies were conducted among selective populations. More studies, involving a large general population, are needed in order to establish these associations.

Therefore, we aimed to test the association between uric-acid and elevated alanine aminotransferase (ALT) as a marker for liver damage in NAFLD, using real-world data. To this aim our team was composed of researchers from the School of Public Health, University of Haifa, and experts for “big data”; Dr. Ofir Ben-Assuli from the Faculty of Business administration, Ono Academic College and Prof. Gabriel Chodick from the Medical Division, Maccabi Healthcare Services and the Sackler faculty of Medicine, Tel-Aviv University.
We conducted a cross-sectional study using data from Maccabi Healthcare System, a 2-million member and the second largest health maintenance organization in Israel. The population consisted of individuals aged 20-60 years who underwent blood tests for ALT and uric-acid between 1997 and 2012. Individuals with secondary liver disease, celiac and inflammatory bowel-disease were excluded. Subgroup analysis was performed in subjects who had a diagnosis of fatty liver according to ultrasound examination (n=2,628).

The study population included 82,608 people (32.5% men, mean age 43.91±10.15 years). There was a significant positive dose-response association between serum uric-acid levels and the rate of elevated serum ALT (P for trend<0.001) (Figure 1). In multivariable model, controlling for potential confounders (age, gender, BMI, relevant diseases, relevant medication as statins and medications for gout, serum lipids, glucose and smoking), the association between uric-acid and elevated ALT persisted (OR=2.10, 95%CI 1.93-2.29, for the fourth quartile vs. the first). This association was maintained in all categories of gender and BMI (Figure 2). Similar results were observed among patients diagnosed with fatty liver (OR= 1.77, 1.22-2.57).

We concluded that elevated serum uric-acid is independently associated with elevated ALT, both in the general population and among the subgroup of NAFLD patient. This association was demonstrated in all BMI categories; normal weight, overweight and obese. Increased serum uric-acid may be one more piece of the puzzle of NAFLD's pathogenesis and may help explain its tight association with the metabolic syndrome.

The strength of the study is the large sample size of a "real-life" population based on a national database. However, such a database has some limitations as the absence of some non-routine tests, mainly lack of imaging to confirm the presence of NAFLD to the entire sample, and more information on lifestyle. Furthermore, our study does not permit the determination of temporal sequence and thus no inference can be made for causality. The association needs to be further tested prospectively.

Figure 1. (A) Mean serum ALT levels by serum uric-acid deciles. P for trend<0.001 (calculated by ANOVA). (B) Elevated serum ALT levels by serum uric-acid deciles. P for trend<0.001.
Figure 2. Stratified multivariate analysis of the independent association between serum uric-acid and elevated serum ALT; stratified by gender (A & B) or BMI (C, D, E). Models are adjusted for all variables listed above (except for gender and BMI, respectively).
Gestational diabetes mellitus (GDM) increases the risk of adverse birth outcomes for both mother and infant. Previous studies have reported the prevalence of recurrent GDM between 29% and 84%. GDM recurrence is a known risk factor for type 2 diabetes among women with history of GDM.

The goal of this research was to examine risk factors for recurrent GDM in a bi-ethnic population (Jewish and Arab women). We conducted a retrospective population-based cross-sectional cohort study of women with GDM, who delivered at Emek Medical Center between 1991-2012 and had another consecutive delivery at the same medical center. The sample included 788 women.

**Main findings**

It was found that IPI was significantly associated with GDM recurrence, along with maternal age, multiparity, GDM diagnosis week, OGTT levels, insulin use and BMI gain between the pregnancies. Overall, shorter IPI (up to two years) is preferred. The IPI impact is significantly stronger among primiparous women (interaction P=0.0004). There was no significant difference in prevalence of GDM recurrence among Jewish and Arab women (P=0.25). The association between GDM recurrence and maternal age and IPI was much stronger among Jewish women compared with Arabs, whereas the first 3 OGTT results and hemoglobin A1c were much stronger among Arabs compared with Jews.

The postprandial glucose levels had predictive abilities for GDM. Among women without GDM recurrence, the postprandial glucose levels were higher throughout the gestation weeks.
**Study contribution**

In the study we clarified the importance of several risk factors, especially those that may be controlled for reduction of GDM recurrence, such as IPI and weight gain between pregnancies. The results of this study provide physicians with target glucose level cutoff points which women need to maintain during their second and third trimesters in order to reduce the risk for future GDM.

The dissertation conclusions were presented to the advisory committee to prevent diabetes of the CEO of the Ministry of Health. The subcommittee recommendations included reducing the IPI and weight gain between pregnancies and to perform a tighter glucose monitoring during a GDM pregnancy.

**Dissertation supervisors:** Prof. Manfred S Green (School of public health, University of Haifa) and clinical assistant Prof. Zohar Nachum (The Bruce Rappaport Faculty of Medicine, Technion).
Risk behaviors, such as alcohol consumption and cigarette smoking, are means by which youth attempt to gain recognition, control, and a sense of independence. Many studies indicate that during adolescence experimentation with risk behaviors increases. Findings from the 2011 Health Behavior in School Aged Children (HBSC) study rank Israel third out of forty-seven countries worldwide regarding the problem of alcohol consumption in early adolescence (ages 11-12). In 2011, nearly 19% of Israeli youth aged 11-12 reported that they had tried smoking cigarettes or tobacco products at least once.

Only in recent years has the Ministry of Education begun to encourage school principals to adopt and implement a health promotion policy for their students. Various studies throughout the world provide evidence of the importance of such a policy as an essential and inseparable component of the school experience and indicate a correlation between health-promoting policies and behavioral changes among students such as: adopting healthy eating habits, increasing physical activity, avoiding and reducing cigarette smoking, violence, bullying, and drug use. The purpose of such a policy is to improve students' health and promote cooperation among students, teachers, and parents (the school community), thereby providing an environment for health improvement.

The theoretical framework of the current study is based on the bio-ecological model of Bronfenbrenner that describes the following four components of the "environment": (a) microsystem - the family, the educational institution, and friends – the social setting in which the child grows up and which has a direct effect on the child's development; (b) mesosystem - the reciprocal relationships between two microsystems that can affect the child's development, for example, the relationship between the child's parents and the school staff; (c) exosystem – the external social setting that affects the child's life, albeit indirectly, for example, the reciprocal relationships among members of the education staff; and (d) macrosystem – the system that reflects the culture and ideology of the society in which the child lives. Above and beyond the model, the need to raise mentally and physically healthy children requires that society identify the factors that place children's development at risk and focus on strengthening the positive personal, interpersonal and environmental factors that promote resilience. Resilience-promoting factors also contribute to a sense of well-being, an existential state that includes physical, mental, and social health. Numerous studies have shown that adolescents' sense of well-being and resilience-promoting factors contribute greatly to reducing risk behaviors. In the current study, the characterization of school principals'
health-promoting attitudes was based on the theoretical model of "adolescent resilience," that focuses on resilience factors as promoters of well-being within the school system. This model, in particular, and other models in general, emphasize the significant role and influence of the school on the mental, physical, and social well-being of the student.

This study combines quantitative and qualitative research methods and is part of the international Health Behavior in School-Aged Children (HBSC) research program under the auspices of the World Health Organization (WHO). First, a cross-national study was conducted by means of a self-administered questionnaire completed by 5,279 students in grades 6, 8, 10, 11 and 12 (ages 11-17) in public schools supervised by the Ministry of Education. Of the 5,280 students sampled, 1,267 (24%) were in grade 6, 1,170 (22.16%) in grade 8, 2,843 (53.84%) in grades 11 and 12. In the sample of 131 schools, 37 were elementary schools with a total of 58 classrooms, 27 were middle schools comprised of 47 classrooms, and 70 were high schools with 148 classrooms (totaling 253 classrooms). An additional cross-national study was conducted on the principals of the schools that were included in the sample of students who participated in the research – 100 principals from 131 schools (76.3%): 27 principals in grade 6 (27%), 20 principals in grade 8 (20%), and 53 principals in grades 11-12 (53.08%).

Later, in-depth interviews were conducted with a sample of 20 of the school principals surveyed in order to understand the factors related to risk behaviors and the sense of well-being of students in Israel. The interviews were intended to investigate in depth the principals' means of decision-making regarding everything related to the school's health promotion policy, the steps actively taken, and the obstacles preventing them from implementing a long-term health-promotion policy. HLM 7 software was used for the analysis. Findings from the multilevel analysis on the individual and school levels showed that the study's hypotheses were partially supported. Parental involvement in development, planning and implementation of health-promoting programs, was a significant predictor of excessive alcohol consumption among youth, and the coefficient indicates that parental involvement decreases the risk of excessive drinking by 1.3 compared to the absence of parental involvement. The qualitative findings present a picture that significantly supports the results of the quantitative model. According to the interviews, although principals are convinced that health is a significant and important promoter of well-being in youth, they do not implement basic policies in order to establish this subject in schools. This fact is evidenced by: the absence of the subject of health promotion from the school's mission statement, in general, and the principals' personal mission statement, in particular, no formal designation of a staff position dedicated to health promotion, no health promotion training for teachers, and more. In addition, findings indicated that most school principals did not recognize the importance of establishing a health promotion policy for prevention of risk behaviors, and many of them claimed that there are many factors that make it difficult to implement such a policy in the school, such as: the large number of subjects that principals are expected to teach in schools, the lack of resources to promote the subject of health, inability to enforce the policy outside of the school, teachers' lack of knowledge on the subject, lack of encouragement and support from the Ministry of Education for implementation of intervention programs, and lack of systematic
evaluation of program implementation and effectiveness. The theoretical research model, based on the research literature and the results of the current study, improves the understanding of the role of school principals in the field of health promotion and the understanding of the strength of the relationships between the research variables on the individual level (the student) as well as the school level (the principal). This study reinforces the importance of implementing the health promotion approach in the school framework, which takes a holistic view of all systems in a child's life that influence his behavior.

The main conclusion of the current study is that effective health promotion in schools is dependent on the involvement of parents and the school staff in everything concerning the students' health. It must be emphasized that parental support and involvement and students' positive perception of the school are resilience-promoting factors against the development of risk behaviors. Moreover, time spent with friends can be a source of social support and is a positive influence on the sense of well-being. Nevertheless, it can be a risk factor because it is a source of social pressure, temptations, and dangers. The findings not only identified consistent relationships between individual level characteristics and risk behaviors, they also underscored the positive influence of parental involvement on the implementation of school health-promoting programs as a means of reducing risk behaviors and improving students' sense of well-being.
Publications:


Recent Grants:

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Publications:


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