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АКТУАЛЬНЫЕ ВОПРОСЫ РЕСУРСОСБЕРЕЖЕНИЯ В СФЕРЕ АВТОМОБИЛЬНОГО ТРАНСПОРТА ПУТЕМ УТИЛИЗАЦИИ АВТОМОБИЛЬНЫХ ШИН

Шадиметов Ю.Ш.
д.ф.н., профессор Ташкентского государственного транспортного университета, Председатель Общественного совета при Госкомэкологии Республики Узбекистан, г. Ташкент
Айрапетов Д.А.
ассистент Ташкентского государственного транспортного университета Республики Узбекистан, г. Ташкент

CURRENT ISSUES OF RESOURCE SAVING IN THE SPHERE OF AUTOMOBILE TRANSPORT BY DISPOSAL OF CAR TIRES

Shadimetov Yu.,
Doctor of Philological Sciences, Professor of the Tashkent State Transport University, Chairman of the Public Council under the State Committee for Ecology of the Republic of Uzbekistan, Tashkent
Ayrapetov D.
assistant of Tashkent State Transport University Republic of Uzbekistan, Tashkent
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Аннотация

В данной статье рассмотрены вопросы переработки и утилизации автомобильных шин. Анализируются передовые методы регулирования утилизации отработавших шин в разных странах. Описаны способы переработки отработавших изношенных шин, а также приведены примеры получения готовой продукции из вторичного сырья, а именно использования резиновой крошки из шин для получения полезной продукции. Целью статьи является рассмотрение вопросов ресурсосбережения в сфере автомобильного транспорта путем утилизации автомобильных шин, сравнение способов утилизации отработавших шин, как с экономической, так и в первую очередь, и с экологической точки зрения.

Abstract

This article discusses the issues of recycling and disposal of car tires. The best practices for regulating the disposal of used tires in different countries are analyzed. Methods for processing used tires are described, as well as examples of obtaining finished products from recycled materials, namely, the use of crumb rubber from tires to obtain useful products. The purpose of the article is to consider the issues of resource saving in the field of road transport by recycling car tires, comparing the methods of recycling used tires, both from an economic and, first of all, and from an environmental point of view.

Ключевые слова: экология, утилизация, изношенные шины, переработка шин, устойчивое развитие, автомобильнеый транспорт, переработка.

Keywords: ecology, recycling, used tires, tire recycling, sustainable development, road transport, recycling.

Стремительное развития дорожно –транспортного комплекса приводит к образованию огромного количества отходов. В этой связи, сегодня проблема с утилизацией отходов - самая важная задача и ее решение, безусловно, может оказать экономический и экологический эффект [1].

Проблему использования отходов можно решить созданием утилизированной системы, т.е. возможности утилизации отходов после вторичной переработки мусора. Наиболее эффективно утилизировать эти отходы - использовать их как техногенное сырье для получения полезного технического продукта. [2,3].

В настоящее время общее годовое образование твердых отходов в мире составляет приблизительно 17 миллиардов тонн и к 2050 году достигнет 27 миллиардов тонн [4]. Из этого количества около 1,3 миллиарда тонн в данное время составляют твердые бытовые отходы, образующиеся в крупных городах мира [5].

Автомобильный транспорт является крупнейшим потребителем материальных и энергетических ресурсов, которые подразделяются на первичные и вторичные.

Первичные ресурсы, используемые на АТП в процессе производства, включают машины, агрегаты, узлы, приборы, запасные части автомобилей, аккумуляторов, технологического оборудования и инструменты, топлива, смазочные и другие эксплуатационные материалы, различные изделия и материалы для хозяйственного назначения. Кроме этого, АТП потребляет большое количество тепловых и электрических энергий и воды.

Из общего объема отходов, образованных в АТП, примерно 70 % приходится на вторичные ресурсы. Существенно снизить их затраты возможно только повторное их использование на АТП ремонт двигателей, коробок передач, редукторов, шин и т.д. и производить первичные ресурсы, потребляемые автомобильным транспортом.

Рис. 1 – Свалка отработавших и не утилизированных автомобильных шин.

В среднем каждый год число транспортных средств возрастает на 1,5 млн. единиц. Общемировые запасы изношенных шин оценивают от 25 до 39 млн. тонн, при ежегодном увеличении не менее семи миллионов тонн. Пожарные свалки автомобилей становятся экологическими бедствиями. В России и в СНГ, по экспертным данным образуется более 1 млн. тонн отработанных автошин ежегодно. По данным Европейской ассоциации по вторичной обработке шин ETRA, общий вес шин, изношенных и не перерабатываемых, достиг:

В Европе – 5,3 млн.тонн;

В США – 6,4 млн.тонн;

В Японии – 2,0 млн.тонн;

В России – 2,2 млн.тонн;

В Узбекистане – 1,2 млн.тонн.

Объем обработки автошин с помощью измельчения - не более 10 %. Большую часть собранных шин 20 % используют в качестве топлива. Изношенные и вышедшие из строя шины - источник длительного загрязнения окружающей средой, шины не подвержены биологическому износу. Проблема с переработкой изношенных шин автомобилей и вышедших из эксплуатации имеют большое экологическое и экономическое значение.

На сегодняшний день в мире используется только 23% покрышек: а) для экспорта в другие государства; б) для сжигания с целью выработки энергии, в) для механического размельчения для покрытий дорог и т.д. Оставшиеся 77 % использования автопокрышек никак не утилизируются, потому что нет рентабельного способа утилизации.

Проблему следует рассматривать в двух направлениях: Первый – общегосударственный, поскольку проблемы экологической безопасности и утилизации промышленных отходов должны регулироваться на государственном уровня. Во-вторых, сугубо отраслевая, вопрос применения какого-либо материала промышленностью может быть рассмотрен только при достижении конкретных технических и экономических эффектов [6,7].

Мировая практика показывает, что необходимо создать государственные комплексные программы, направленные на организацию сборов, временных хранений, переработку и развитие рынка потребления продуктов утилизации отработавших шин.

Утилизация отходов - самостоятельный сектор экономики, занимает важное место в производстве внутренних валовых продуктов (ВВП). Особое место во Франции уделяется вопросу утилизации неисправных шин, введен национальный закон о правилах утилизации неисправных шин. Согласно данным правилам, цена каждой новой шины включена стоимость: цена затрат на сбор, временное размещение и транспортирование утилизированных шин, способных каким-либо образом восстановить шину или утилизировать.

Сегодня вопрос об обращении с изношенными шинами регулируется двумя Международными Конвенциями, которые регулируют обращение с изношенными шинами. Современная шина представляет собой сложный композитный материал из разных материалов и имеет большую прочность.

Эти свойства шин, которые крайне необходимы для безопасного использования колесного оборудования, становятся чрезвычайно сложны при решении задач по их ликвидации. Пыль, вызванная изношением резины, способна вызывать серьезные болезни [8]. Только в Швеции ежегодно в атмосферу попадает около 10 000 тонн пыли резины. Резина выделяет до 100 наименований химических веществ. Резиновая пыль содержит больше канцерогенов, чем выхлопные газы двигателя.

Взаимодействие шин с дождями и грунтом сопровождается удалением ряда токсических органических веществ: бензотиазола, дифенилоамина, фенантрена и т.д. Все они являются канцерогенами.

При сгорании шин образуется такая химическая смесь, которая попадает в атмосферу, становится источником повышения опасности человека. пирен, фенантрен, антрацен, флуорантен, нафталин, бенз (а) пирен и другие органические соединения – как продукт сгорания шин являются особо опасными мутагенами и канцерогенами [9,10].

Утилизация покрышек важна и потому, что синтетический каучук, используемый для их производства, производят из нефти, которая является не возобновляемым природным ресурсом. В 1 тонне отработавших шин содержится около 700 килограммов резины.

Рис. 1 - Технологии переработки (утилизации) автошин.

Основным методом переработка автомобильных шин является переработка автомобильных шин в резиновую крошку. Этот способ является самым простым и рациональным способом переработки – максимально сохраняет физико – механические и химические свойства материала [11].

Технология переработки

Процесс переработки шин в крошку предусматривает ряд последовательных этапов:

Контроль качества поступивших покрышек. Изделия тщательно осматривают на предмет наличия шипов и прочих элементов, не пригодных к переработке.

Предварительное измельчение. Шины нарезают на сегменты размером 200х200 мм.

Удаление металлической фракции. Сырье по конвейеру поступает в шредер для очередной стадии измельчения. Параллельно при помощи магнитного устройства из массы извлекается бортовая проволока и прочие металлические элементы.

Измельчение до конечной фракции. В роторной дробилке материал доводится до заданной величины фракции, а также очищается от металлического корда.

Сепарирование. В сепараторе из массы удаляется текстильный корд и остатки металлического корда.

Сортировка по фракциям. Выполняется путем пропускания материала через систему вибросит.

Упаковка и складирование. Материал фасуется в мешки и отправляется на склад.

Основное оборудование для получения резиновой крошки из отработавших автомобильных шин.

Станок для вырезания бортовых колец

✖ **Производительность: 30-10 шин/час** ✖ **Габариты перерабатываемых шин: От R 13 до R22.5** ✖ **Мощность: 1.5 кВт** ✖ **Габариты:** **1200*950*1300 мм** ✖ **Вес: 150 кг**	

Станок для рубки ленты на чипсы (дисковые ножницы)

✖ **Количество оборотов: 74 об./мин** ✖ **Объём: 3 м. куб.** ✖ **Мощность: 4 кВт** ✖ **Производительность:1700 метров/час** ✖ **Габариты: 1200x800x1550 мм** ✖ **Вес: 800 кг**	

Станок для рубки ленты на чипсы

✖ **Объём: 1.5 м. куб.** ✖ **Мощность: 7.5 кВт** ✖ **Количество оборотов: 386 об./мин** ✖ **Производительность:42 000 чипсов /час** ✖ **Размер резиновых чипсов: 40 мм** ✖ **Габариты:1100x800x1200 мм** ✖ **Вес: 600 кг**	

Рис. 2 - Второй сектор: переработка чипсов в крошку на вальцах

Из полученного сырья т.е. резиновой крошки возможно получить большое количество различной полезной продукции, например, резиновые дорожки, автомобильные полики и т.д.

В заключении хотелось бы отметить что на сегодняшний день возможны различные варианты переработки вышедших из употребления автомобильных шин которые представлены на рис. 1. Утилизация автомобильных шин о на основе метода механического измельчения позволит не только улучшить экологическую обстановку в регионе и в стране в целом, но и решить проблему утилизации автомобильных шин и способствует созданию предприятий по производстве различной резиной продукции и даст новые рабочие места.

Список литературы

1. Бархандаджян А.Л., Хакимов Р.М., Ибрагимов Б.Д., Собирова Д.К., Абдукаримова Г.У., & Айрапетов Д.А. Проблема использования отходов лакокрасочных материалов и их утилизация // Известия Томского политехнического университета Инжиниринг георесурсов. 2020, №331(9), С. 179–185. Режим доступа: http://izvestiya.tpu.ru/archive/article/view/2821/.

2. Zabolotskikh V.V., Vasiliev A.V., Batova K.E. Analiz problemy obrazovaniya otkhodov lakokrasochnykh materialov v samarskoi oblasti i perspektivy ikh pererabotki. // Izvestiya Samarskogo nauchnogo tsentra Rossiiskoi akademii nauk. – 2015. – Vol. 17. – No. 4. pp. 273-276. In Rus.

3. Karak T., Bhagat R.M., Bhattacharyya P. Municipal solid waste generation, composition, and management: the world scenario // Critical Reviews in Environmental Science and Technology. – 2012. – Vol. 42. – No. 15. – pp. 1509-1630. https://doi.org/10.1080/10643389.2011.569871.

4. Бархандаджян А.Л., Хакимов Р.М., Ибрагимов Б.Д., Вафаев О., Айрапетов Д.А. Антикоррозионная защита металлических деталей транспортной техники полимерным покрытием на основе эпоксиуретана // CHEMISTRY AND CHEMICAL ENGINEERING: (Химия и химическая технология). Vol. 2021: No. 3, Article 8. 46-49pp. URL: https://uz-journals.edu.uz/cce/vol2021/iss3/8

5. Hoornweg D., Bhada-Tata P. What a waste – A Global Review of Solid Waste Management // World Bank. – 2012. – No. 15. – pp. 116. https://openknowledge.worldbank.org/handle/10986/17388

6. Кострова Зоя Александровна, Михеев Артур Владимирович, Бушуева Марина Евгеньевна, Беляков Владимир Викторович, Митяков Сергей Николаевич Утилизация пневматических и безвоздушных шин // Труды НГТУ им. Р. Е. Алексеева. 2016. №3 (114). URL: https://cyberleninka.ru/article/n/utilizatsiya-pnevmaticheskih-i-bezvozdushnyh-shin

7. Гусев А.Д., Петухова Н.А., Карпухин Г.А. К вопросу переработки изношенных автомобильных шин // Вестник БГТУ имени В. Г. Шухова. 2014. №6. URL: https://cyberleninka.ru/article/n/k-voprosu-pererabotki-iznoshennyh-avtomobilnyh-shin

8. Shadimetov Yu.Sh, Ayrapetov D.A., Ergashev B. Transport, ecology and health // International Journal of Advanced Research in Science, Engineering and Technology. Vol 8, Issue 4, no 33, 2021 – PP. 17226-17230. // URL: http://www.ijarset.com/upload/2021/april/33-botir-28.PDF.

9. Шадиметов Ю.Ш., Айрапетов Д.А. АКТУАЛЬНЫЕ ВОПРОСЫ СТРАТЕГИИ ЭКОЛОГИЧЕСКИ УСТОЙЧИВОГО ТРАНСПОРТА // Universum: технические науки: электрон. научн. журн. 2022. 4(97). URL: https://7universum.com/ru/tech/archive/item/13343

10. Шадиметов Ю. Ш., Айрапетов Д., Ниязов Х. Возрастание роли здравоохранения в активизации человеческого фактора // ВЫСШАЯ ШКОЛА ноябрь 2021 №21 С.22-25. URL: http://ran-nauka.ru/wp-content/uploads/2014/09/Nauka-21-2021.pdf

11. Фролов А.А., Фролов С.А. Анализ конкурентных преимуществ технологий переработки изношенных автомобильных шин // Региональная экономика: теория и практика. 2010. №41. URL: https://cyberleninka.ru/article/n/analiz-konkurentnyh-preimuschestv-tehnologiy-pererabotki-iznoshennyh-avtomobilnyh-shin

ECONOMIC SCIENCES

ВОПРОСЫ РАЗВИТИЯ ЭКОНОМИКИ РЕСПУБЛИКИ КАЗАХСТАН В УСЛОВИЯХ «ИНДУСТРЯ 4.0»

Унербаева Р.У.
Казахский национальный университет имени аль-Фараби
Высшая школа бизнеса и экономики
Департамент менеджмента
Нурмагамбетова А.М.
Казахский национальный университет имени аль-Фараби
Высшая школа бизнеса и экономики
Департамент бизнес-технологий

ISSUES OF DEVELOPMENT OF THE ECONOMY OF THE REPUBLIC OF KAZAKHSTAN IN THE CONDITIONS OF "INDUSTRY 4.0"

Unerbayeva R.,
Al Farabi Kazakh National University
Higher School of Business and Economics
Department of Management
Nurmagambetova A.
Al Farabi Kazakh National University
Higher School of Business and Economics
Department of Business Technologies
DOI: 10.5281/zenodo.6825721

Аннотация

В данной статье рассматриваются вопросы развития казахстанской инновационной экономики в рамках «Индустрии 4.0». Ключевую роль на рынке инновационной экономики играют функции предпринимателей, новаторов и ученых, которые вносят изменения в экономический баланс, технологический процесс, в масштабы производства и структуру экономической организации. Предполагается, что при этом в основном прибыль создаёт интеллект новаторов и учёных, информационная сфера, а не материальное производство и не концентрация финансов. «Индустрия 4.0» является вызовом для инновационного развития и усиления конкуренции между странами. В статье рассматриваются влияние этих вопросов на экономику Казахстана и возможности развитие инновационной отрасли. Сделан анализ текущего состояния казахстанского инновационного сектора и развития развитых стран в рамках «Индустрии 4.0», на основе роли инновационной экономики в Казахстане.

Abstract

In the context of the question of development of the Kazakhstan innovation economics in the frameworks of Industrial Innovations 4.0. A key role in the innovation market is the role of innovators, innovators and researchers in the market, the changes in the economic balance, the technological process, the scale of production and the structure of the economic organization. It is assumed that this is the basis of intelligent innovators and software, information spheres, or material production and concentration of finances. "Industry 4.0" is an innovative development and promotion process for the countries. The article considers the issues of economic development and development of innovation in Kazakhstan. The analysis of the current state of the Kazakh innovation sector and the development of the developed countries in the frames of "Industry 4.0", based on the role of the innovative economy of innovation in Kazakhstan.

Ключевые слова: инновации, инновационная экономика, индустрия 4.0, цифровизация, инновационная деятельность.

Keywords: innovation, innovation economy, industry 4.0, digitalization, innovative activity.

Введение

В 50-е годы XX века известный американский ученый Роберт Солоу впервые обращает внимание на научно-технический прогресс как основной фактор экономического развития. Аналогичные выводы сделали и другие экономисты, такие как Джон Кендрик, Эдвард Денисон, а также Саймон Кузнец.

Впоследствии Эдвард Денисон разработал характеристику факторов экономического роста, определив 4 из 23 факторов как капитал, 1-как земля, остальные 14-как плод научно-технического прогресса, т. е. инновации. Одним из факторов экономического роста и конкурентоспособности является своевременное освоение инноваций и их эффективное внедрение. Мир сейчас

Цифровая экономика вновь трансформирует известные нам бизнес-модели и снижает роль посредников в сфере продаж и услуг. Всемирный банк в своем обзоре «Цифровые дивиденды» за 2016 год

показал преимущества и риски цифровой экономики. Цифровая экономика, с одной стороны, может привести к повышению производительности труда, повышению конкурентоспособности компаний, снижению издержек производства, созданию новых рабочих мест, а с другой-к киберугрозе, массовой безработице, «цифровому неравенству» между государствами. Сейчас наиболее развитые государства находятся на пути к широкому освоению элементов» Индустрии 4.0". Для Казахстана в этом направлении очень важно осуществлять научно-исследовательскую работу по всем отраслям и осваивать инновации.

Материалы и методы.

В работах таких исследователей, как теория» инновационной экономики " (Тоффлер, 2004, 2007; Фукуяма, 2004)и Белл (Bell, 1973) и др., А теории технологического уклада и индустриальной революции изучены Глазьев и Харитонов, 2009; Малинецкий, 2010; Авербух, 2010) и (Перес, 2011). Также в информационно-аналитических материалах глобального инновационного индекса (The Global Innovation Index), программы развития Организации Объединенных Наций (United Nations Development Programme), Всемирного банка и Комитета по статистике Министерства национальной экономики Республики Казахстан обобщены показатели по инновационному развитию.

Методологической основой исследования является диалектический метод познания. В ходе исследования использовались общенаучные методы (моделирование, анализ, синтез, дедукция, классификация, системный подход) и когнитивные методы (статистические методы), понятия, методические и справочные материалы, статьи из периодических изданий, посвященные области теории и практики социально-экономического развития региона, отдельные исследования группы исследователей.

Обзор литературы.

Теоретические основы инновационной экономики изучены многими учеными, написаны ценные труды, составлены различные теории. В 30-е годы XX века австрийский ученый Йозеф Шумпетер в своей работе» теория экономического роста «первым ввел понятия» новатор «и» внедрение инноваций". По Шумпетеру, инновация-это изменение в целях внедрения и использования новых потребительских товаров, новых средств производства и транспортировки, рынков и организационных форм в промышленности. И. Шумпетер связал свою теорию с волнами н. д. Кондратьева. Вслед за И. Шумпетером, связывая теорию инноваций с теорией циклов, продолжили г. Менш, К. Фримен и др.

В 1970 г. американский ученый T.R. Prince говорит: «инновации - это внедрение новых продуктов и технических методов на предприятии или за его пределами».

В понимании Брайана Твисса инновация-это процесс, который имеет изобретательное или экономическое содержание. К этому мнению присоединяется и В. Л. Макаров.

В 1990 г. Б. Санто (Венгрия) утверждал, что инновации-это «общественно-технико-экономический процесс», который после практического применения идей и творческих результатов приводит к лучшим свойствам продуктов и технологий. Если он ориентирован на экономическую выгоду, прибыль, его выход на рынок интерпретируется как дополнительный источник дохода.

Российские ученые трактуют инновации как результат материализации новой идеи, новизны и новых научных решений, патентов, информации и других интеллектуальных открытий. (Э. А. Уткин, А. С. Кулагина, Н.Н.Молчанов и др.).

С. Ю. Глазьев отмечает «что " Инновация - процесс, имеющий прикладной характер, четко ориентированный на конечный результат, всегда обеспечивающий определенный технический, социально-экономический эффект. Инновации меняют свою форму в своем развитии (жизненный цикл инноваций) в движении от идеи к внедрению».

Как сказал американский экономист Джеймес Брайан Куинн, инновационный процесс-это единственный процесс, объединяющий науку, технику, экономику, предпринимательство и управление. Суть его заключается в получении новизны, возникновении и коммерческой реализации идеи, а также в прохождении комплекса таких отношений, как производство, обмен, потребление.

В своей работе «Эпоха инноваций» Ф. Янсен выделяет два типа менеджмента: простой менеджмент и экстра-менеджмент.

Ученые, занимающиеся проблемами современного инновационного менеджмента, Пьет Болуит, Филипп Русселл, Рой Ротуэлл и другие выделяют несколько этапов управления звеньями сборки и исследований. Эти звенья связаны с ограниченностью технологических возможностей, финансовых ресурсов и увеличением потребителей, конкурентов на рынке.

Конечно, многие ученые вносят свой вклад в изучение проблем развития инновационной деятельности в экономике Казахстана. (Днишев and Альжанова, 2013; Мухтарова and Купешова, 2015; Сатыбалдин et al., 2016; Кувандыков, 2015; Ибраев, 2016). Но развитие казахстанской экономики в направлении инноваций, цифровизации по-прежнему охвачено множеством нерешенных вопросов, одним из которых является построение путей повышения конкурентоспособности казахстанской экономики при индустрии 4, эффективной коммерциализации результатов научного исследования.

Результаты и мнения.

По мнению многих исследователей, термин «инновация» появился примерно в первой половине XV века, т. е. в переводе с английского «innovation» означает «возрождение» или «Новый Путь к созданию товара». А инновационная экономика (экономика знаний, Интеллектуальная экономика) - это вид экономики, основанный на потоке инноваций, непрерывном технологическом совер-

шенствовании, производстве и экспорте высокотехнологичной продукции с очень высокой добавленной стоимостью и технологиями.

Э. Тофлер, Ф. Фукуяма, Д. Белл, Дж.Многие исследователи, такие как найсибит, считают, что для большинства развитых стран современного мира инновационная экономика обеспечивает мировое экономическое преимущество страны, которая ее создает. (Тоффлер, 2004, 2007; Фукуяма, 2004)

Отличает инновационную экономику от» обычной". Доминирующей отраслью в промышленном «простом» обществе является обрабатывающая промышленность, представляющая собой: эффективность и производительность, высокий уровень конкуренции и развитую бизнес-среду. Если в индустриальном обществе ключевыми фигурами являются предприниматель, бизнесмен, руководитель промышленного предприятия, то в инновационной экономике-ученые, инноваторы, венчурные капиталисты, экономисты и представители интеллектуальных технологий. Инновационное развитие включает внедрение инноваций в приоритетных секторах, развитие трансфертной системы и коммерциализацию технологий и распределительных сетей знаний, а также создание международных трансдисциплинарных исследований и образовательных центров. Новая эра инновационной экономики это "Индустрия 4.0". В 2011 году четвертая промышленная революция, известная как» Индустрия 4.0«, получила свое название под руководством бизнесменов, политиков и ученых, которые определили ее как инструмент повышения конкурентоспособности немецкой обрабатывающей промышленности путем интеграции» кибер-физических систем". (Глазьев и Харитонов, 2009; Малинецкий, 2010; Авербух, 2010)

Четвертая промышленная революция (Industry 4.0) означает переход к полностью автоматизированному цифровому производству с перспективой интеграции в глобальные индустриальные сети и сервисы, постоянно вмешиваясь во внешнюю среду, контролируемую интеллектуальными системами в режиме реального времени. (Шваб, 2018).

Industry 4.0-совокупность технологий, возникающих на основе взаимосвязи физической, цифровой и биологической отраслей. Industry 4.0-стимулирует технологические достижения в таких областях, как искусственный интеллект, робототехника, 3D-печать, нанотехнологии, биотехнологии, материаловедение, энергосбережение и квантовые вычисления. На сегодняшний день большинство экспертов сходятся во мнении, что инновации и прорывные результаты в области Industry 4.0 появляются во взаимосвязи нескольких наук. В связи с этим термин «NBIC-convergence» (в первых буквах: N-nano, B-Bio, I-info, C-cogno) был введен в 2002 году Михаилом Роко и Уильямом Бейнбриджем. NBIC - конвергенция-гипотетическое ядро 6-й технологической структуры, основанной на сочетании достижений нанотехнологических, био -, информационных и когнитивных технологий с синергетическим совершенствованием (Перес, 2011)

К сожалению, в настоящее время в Казахстане большая часть производства приходится на третью технологическую структуру, которая составляет около 65% производства, а на четвертую технологическую структуру приходится от 30 до 35%, а на пятую технологическую структуру приходится всего 1% производства. Кроме того, 60% инвестиций приходится на производство четвертой технологической структуры. Например, экономика США составляет пятую и шестую технологические структуры, как показано в таблице 1, из которых 5% соответствуют шестой технологической структуре, а 60% составляют пятую технологическую структуру. 10% темпов промышленного развития России занимает пятая технологическая структура, это развитие электронной промышленности, программного обеспечения, телекоммуникаций, робототехники, альтернативных источников сырья, информационных технологий.

Фраунгофер институты и бизнес-Швеция шведский совет по торговле и инвестициям совместно провели исследование рынка Казахстана. Мнение международных экспертов позволяет довести эффективность предприятий по внедрению киберфизических и роботизированных систем, анализа больших чисел и других технологий "Индустрии 4.0" до 10-20%. США, Германия, Франция, США, Германия, Франция ежегодно за счет цифровизации фактически повышают ее в размере 1-1, 5%. (https://abctv.kz/ru/news/bolshinstvu-predpriyatij-nedostupna-industriya-4-0)

В докладе Всемирного экономического форума, опубликованном в сентябре 2015 года, определено, что двадцать один объект строительства формирует цифровой мир будущего. Они наглядно демонстрируют глубинные изменения, которые рождаются от четвертой промышленной революции. Это значит, что в производстве должна быть только модернизация и ее цифровизация. Для решения этой проблемы необходимо увеличение числа специалистов и средств, инновационных полномочий предприятий. инновационной активности предприятий в Германии-61.5%; Бельгии-52.8%; Финляндии-50%; Франция и Австрия - 41-43% (Dutta et al., 2016) http://stats.oecd.org / www.stat.gov.kz .)

Вместе с тем, без решения вопроса финансирования казахстанской научной науки инновационная экономика не получит интенсивного развития. Для сравнения, в Швеции расходы на исследования и разработки на душу населения составляют около 1 380,9, Финляндии-1335,9, США-1 307,6, Швейцарии-1 287,0, Японии - 1 168,5, России - 166,7 долларов США. Как видно из данных, по этому показателю Казахстан отстает от развитых стран более чем в 60 раз. (Журинов, 2014; www.uis.unesco.org/ www.battelle.org/docs)

Страна	Программа	Год принятия
США	Manufacturing USA, or the National Network for Manufacturing Innovation program	2014
Германия	Action Plan High-tech strategy 2020 (industrie 4.0)	2010, 2013, 2015
Великобритания	Industrial Strategy plan 2030	2017
Япония	Innovation 25	2007
Корея	National Strategy for Sustainable Development (пятилетние программы 2006-2010, 2011-2015, 2016-2020)	2015
Китай	Made in China 2025	2015
Қазақстан	Концепция индустриально-инновационного развития Республики Казахстан на 2020-2024 годы, государственная программа "Цифровой Казахстан"	2018, 2017

Конечно, вопросы цифровизации и» Индустрии 4.0 " сегодня охватывают все страны мира. Каждое государство со своей стороны предпринимает особые меры по этому вопросу, например, развитые государства реализуют национальные программы по переходу или цифровизации «Индустрия 4.0». Среди них лидируют по цифровизации экономики Китай, Сингапур, Новая Зеландия, Южная Корея и Дания.

Казахстан в настоящее время входит в число “догоняющих” стран в рейтинге e-intensity международной консалтинговой компании The Boston Consulting Group по текущему уровню цифровизации. Безусловно, нновационное развитие и цифровая система являются взаимодополняющими явлениями. Девять основных технологий меняют промышленное производство: автономные работы, многомерное цифровое моделирование, вертикальная и горизонтальная интеграция, промышленный интернет вещей, кибербезопасность, столбчатые технологии, аддитивное производство, дополняющая и виртуальная реальность, анализ с большими данными. Страны, стремящиеся к конкурентоспособности, должны иметь ресурсы для создания компетенций в этих технологических направлениях.

Заключение

Корпорации предпринимательского сектора в развитых странах сформировались как важнейшие структуры национальных инновационных систем. Кроме того, корпорации, которые финансируют научные исследования и превращают научные результаты и изобретения в конкретные продукты и технологии, несут экономическую ответственность по основным направлениям научно-технического прогресса, которые составляют большую часть финансирования науки в частном секторе. Предпринимательский сектор, наряду с увеличением числа ученых и инженеров, занимающихся научно-исследовательской работой в будущем, остается исполнителем крупных научно-исследовательских работ. Поэтому для перехода казахстанской экономики в новую индустриальную эпоху необходимо широкое использование финансовых, человеческих, материальных, научных ресурсов корпораций и частного сектора. На сегодняшний день, согласно рекомендациям экспертов института Fraunhofer, отобраны несколько казахстанских предприятий. Это: АО "Кентауский трансформаторный завод», ТОО «Карлскрона», АО «Химфарм», АО «Евразиан фудс», ТОО «Алматинский вентиляторный завод», ТОО» Корпорация Казахмыс«,»Казхром". "Кроме того, на системообразующих предприятиях горно-металлургического комплекса будут реализованы проекты по внедрению технологий Индустрии 4.0. (https://www.inform.kz/kz/industriyaldy-innovaciyalyk-damudyn-zhana-tuzhyrymdamasy-azirlenedi_a3199965)

90% знаний, освоенных человечеством, сформировались за последние 30 лет. Это сформировало новую модель новой экономической структуры-экономику знаний, главным ресурсом которой является человеческий капитал. (Казахстанская наука и инновации: трудный путь навстречу друг другу Адил Ибраев (https://forbes.kz/process/science/kazahstanskaya_nauka_i_innovatsii_trudnyiy_put_navstrechu_drug_drugu/)

Контуры национальной модели инновационного развития Казахстана также формируются как высокотехнологичная модель экономики, основанная на человеческом капитале. Очень важно сформировать новую волну инженеров и инженерно-технических работников с современным техническим мышлением, а также Нам нужны инновационные менеджеры, которые хорошо знают рынок, знают, какие ресурсы им нужны, куда направлять выпускаемую продукцию и т.д. Важно конкретизировать компетенции, необходимые для потребностей современного производства, и обучать инновационных сотрудников и менеджеров.

Таким образом, цифровизация ведет к созданию нового общества, в котором активно развивается человеческий капитал. За счет новых цифровых технологий повысится эффективность и скорость производства, продаж, потребления. Кардинально меняются способы производства, появляются новые требования к знаниям и трудовым навыкам людей. Уже сейчас, из-за пандемии, искусственный интеллект также широко внедряется в консервативных областях, таких как финансовые услуги и медицина. Технология 3D-печати способствует трансформации таких отраслей, как авиация, логистика, биомедицина и автомобильная промышленность. Эти изменения происходят не десятилетиями, а годами и даже месяцами. Но это только начало; поэтому для казахстанской экономики и социальной сферы освоение средств и методов цифризации является современным и очень актуальным вопросом.

Литературы

1. Toffler, Alvin, 1980 «The Third Wave: The Classic Study of Tomorrow»

2. Fukuyama F., the Great Disruption. Moscow.: AST, 2004.

3. Fukuyama F. Trust: The Social Virtues and The Creation of Prosperity: Translated from English / Fukuyama F. - Moscow: AST: 'Ermak' Scientific and Production Enterprise ZAO, 2004.

4. Fukuyama F. Our Posthuman Future. Consequences of the Biotechnology revolution / Fukuyama F.; Translated from English by M.B. Levina. — Moscow: AST, 'LUX' JSC 2004.

5. Bell D. The coming of post-industrial society: A venture of social forecasting. — N.Y.: Basic Books, 1973, ISBN 0-465-01281-7

6. Kablov E. Sixth technological mode // Science and life: journal. — Moscow, 2010. — № 4.

7. K. Peres, Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages. — Moscow: Delo, 2011. — p. 232 — (Modern Institutional Evolutionary Theory). — 1 500 copies — ISBN 978-5-7749-0626-0.

8. Satybaldin A.A., F.M. Dnishev, N.K. Nurlanova, Assessment of the prerequisites for the transition of Kazakhstan's economy to the principles of inclusive development and "smart" specialization: a brochure / Ed. A.A. Satybaldin. - Almaty: Institute of Economics of the Science Committee of the Ministry of Education and Science of Republic of Kazakhstan, 2016 г. – p. 52.

9. On the way to new accomplishments, A. Kuvandykov, rector of the East Kazakhstan State University named after S. Amanzholova

10. https://abctv.kz/ru/news/bolshinstvu-predpriyatij-nedostupna-industriya-4-0)

11. Soumitra Dutta, Bruno Lanvin, and Sacha Wunsch-Vincent Editors The Global Innovation Index 2016 Winning with Global Innovation www.globalinnovationindex.org/gii-2016-report

12. www.uis.unesco.org/www.battelle.org/docs

13. https://www.inform.kz/kz/industriyaldy-innovaciyalyk-damudyn-zhana tuzhyrymdamasy-azirlenedi_a3199965

14. https://forbes.kz/process/science/kazahstanskaya_nauka_i_innovatsii_trudnyiy_put_navstrechu_drug_drugu/

ДУХОВНО-НРАВСТВЕННЫЙ ЭТИКЕТ КАК ОСНОВА СОВЕРШЕНСТВОВАНИЯ СОЦИАЛЬНО-ЭКОНОМИЧЕСКОЙ ДИСЦИПЛИНЫ

Одашев И.М.
Институт прогнозирования и макроэкономических исследований при Министерстве экономического развития и сокращение бедности Республики Узбекистан

THE SPIRITUAL AND BEHAVIORAL ETIQUETTE AS THE BASES OF IMPROVING SOCIO-ECONOMIC DISCIPLINE

Odashev I.
Institute of Forecasting and Macroeconomic Research under the Ministry of Economic Development and Poverty Reduction of the Republic of Uzbekistan
DOI: 10.5281/zenodo.6825765

Аннотация

Согласно статье, духовность должна сопровождать экономическое развитие как один из основных критериев совершенствования дисциплины поведенческого этикета людей при сотрудничестве в социально-экономической деятельности. В статье также рассматривается духовность как фактор сокращения экономической бедности, важность становления рыночной экономики, основанной на сильных духовных ценностях, влияние общества на многовековые духовные традиции, влияние системы «человек-общество-государство».

Abstract

According to the article, spirituality should accompany economic development as one of the primary criteria for improving disciplines on the behavioral etiquette of the people while cooperating in socio-economic activities. The article also examines spirituality as a factor in economic poverty reduction, the importance of establishing a market economy based on strong spiritual values, the impact of society on centuries-old spiritual traditions, and the impact of the "human-society-state" system.

Ключевые слова: духовность, экономика, гармония, рыночная экономика, общественное благосостояние, общие интересы.

Keywords: spirituality, economy, harmony, the market economy, social welfare, common interests.

"The highest spirituality is an invincible force."[1]

I. Introduction

The national economy and spiritual life of the people have always been inextricably linked. People work, activate, talk, live, and engage each other in everyday life. And it is impossible to imagine these continuous connections without behavioral, disciplinary and social norms of etiquette. Because the economy is not limited to getting profits and expenditures, people should respect one another regardless of the scale of economic activity. Positive changes replace serious negative actions in human interactions and relationships at all stages of human development, from the emergence of human society to the present. Among these changes is a sense of spiritual uplift, which embodies human behavior, character, and relationships. Spirituality and morally developed viewpoints are a concept that encompasses the positive traits that many people share, such as spirit, intellect, perception, state of mind, inner mood, courage, essence, care, and sadness. Spirituality is the sum of a person's spiritual and mental worlds. The main purpose of the paper is to make the economic relationships based on the spiritual, behavioral and socio-economical etiquette and get socio-economical welfare of the people.

We often hear or read about a different kinds of criminal topics or issues on the internet, newspapers, journals, TV-set, radio and other media resources such as "*What scammers do in the digital age and how they get away with it for so long*", "*Italian businessman made a fortune by counterfeiting Supreme clothes*", "*"Unusual traffic": How Chinese hackers bankrupted Canada's largest corporation*". Such kinds of information we can find any media resources and every single day. But how can we solve these issues before it has done? Is it possible? Or should we, once again, be limited and forced solely by law enforcement agencies? What other mechanisms exist to deal with such situations to prevent crime or disrupt the balance of economic activity and social, spiritual, moral, and behavioral communities? During the paper, we can open the morally developed viewpoints and behavioral disciplines which can be made mechanisms to prevent criminal and nonbehavioral economic activities.

II. Literature review

The ideologies of Central Asian thinkers and folklore play an important role in the formation of the national economy. As one of Central Asia's medieval scientific and cultural centers, its positive impact on the Renaissance process in other regions has been con-

[1] Citation: Karimov I.K, "High spirituality is an invincible force". Tashkent, Manaviyat, 2008.

firmed by global science. Samarkand hosted an international conference in May 2014 on **"Historical heritage of medieval scholars and thinkers, its role and significance in the development of modern civilization,"** with scientists, representatives of leading international organizations, and scientific centers from nearly 50 countries in attendance. President of the Republic of Uzbekistan in his speech provided a deeper understanding of the significance of our great ancestors' rich spiritual heritage. (Boriy Alixonov & Abdurakhim Qurbanov, 2015)

Uzbekistan is rich in its historically behavioral and moral etiquette rules and socio-economic connections based on the many heritages from the great scholars, scientists and governors.

Spirituality is an integrated aspect of one's personality. It manifests as a desire to live and create creatively by ideals of truth, goodness, and beauty. Spiritual culture includes mental, artistic, aesthetic, moral, environmental, legal, and political components. Great thinkers of the past attributed eternal spiritual, moral, and pedagogical values that have a universal, global character, but a national and ethnic basis, to love for children, devotion to the family and the memory of ancestors, diligence, love for the Motherland, for the person, a sense of justice and mutual tolerance, mercy, love for the native language as a life-giving source of the spirituality of the nation, care for the younger generation. (Tolipov U.K, 2017)

The Avesta is one of the richest historical sources for the formation of such ideas. According to research by Uzbek scholars, the Avesta, the sacred book of Zoroastrianism (pre-Islamic), also contains important economic ideas. For example, ***"a man who served all his life on the path of beauty and goodness, light and joy, was pious and truthful, pure and fair, and treated guests impartially." He loves his wife, takes care of the land and livestock, takes care of the human property, takes care of nature, and enjoys it. A person who spends his life in good deeds, pure and just, who does not look at other people's property and preserves the riches of nature like the apple of his eye, expresses spiritual harmony."*** (Khajiev B.D & Abdullaeva R.G, 2016). Also, if you pay attention to the role and export potential of the Great Silk Road in Central Asia, interest in Central Asia, in particular, in the territory of modern Uzbekistan, has long been known and important (politically and economically). According to land, water, climatic, natural, geographical locations, minerals, and wildlife distinguished by historical and current data. Diligence, creativity, loves for the profession and creativity of the population were of great importance.

In the holy book of Islam-the Koran, which is another spiritual basis of our national economy, the activity of human society, and economic relations play an important role. Because economic relations manifest the main characteristics of people. The commandments of the Koran, as a divine commandment to people, are because all people on earth are one family, children of Adam and Eve, and therefore brothers and sisters. In particular, ayat 13 of Surah al-Khujurat says: ***"O, mankind! We make you from unit Father (Adam Alaykxsalam) and unit mother (Momo Khavo) by several types of the nation so you can get to know each other and make love."*** Among the most common economic ideas, the Qur'an glorifies honest work, especially the work of farmers, shepherds, and artisans.

By ayat 29 Niso surah we can see this sentence: ***"Do not realize your property among yourselves in unjust ways (i.e. theft, robbery, usury, bribery, gambling)! But make a fortune by bargaining."*** All other economic ideas are fundamentally focused on property and inheritance, the sanctity of property, betrayal of one's property (particularly treason), and even envy of one's property are considered a great sin.

It's impossible not to include the names of the East's great intellectuals and scientists, who made important contributions to our nation's economic thinking and the economic theories they proposed. Because their contribution to the further enrichment of our contemporary national economy's spiritual roots is priceless. These include Al-Fargani, Al-Khorezmi, Farabi, Beruni, Ibn Sino, Yusuf Khas Hajib, Nizam-ul-Mulk, Amir Temur, Alisher Navoi, Zahiriddin Muhammad Babur and many others. According to Ibn Sina, ***"Animals are content with the benefits of nature, and they deprive people of the benefits of nature. She needs food, clothing and shelter. The animal assimilates the gifts of nature, and man, through his labor, creates food, clothing and shelter for himself. To do this, a person must be engaged in agriculture and crafts''*** (Khajiev B.D & Abdullaeva R.G, 2016; Yuldashev K & Muftaydinov K, 2000). Yusuf Khas-Khajib, on the contrary, says: ***"A person who does not benefit a person is not a dead, lifeless past, but wasted labor".*** (Mahmudov T, 2000; Karimov I, 2008). Farobiy comprehensively interprets the ideas of his teacher Aristotle and tries to supplement them, created a doctrine about the importance of material needs for the formation of society, and described the "need" that is important in economics. The role of labor and labor tools in creating material wealth is determined. In particular, in the works of the thinker, the issues of "division of labor" are well covered. Because of the division of labor, production develops as time is spent, the skills of workers increase, a basis is created for introducing technical means, and the advantage of outsourcing each operation to special people, since all work can be done by one person (master).

European thinkers and scientists investigate the harmony of spirituality and the economy, as well as spirituality and religion. However, all materials investigate the spirituality-based economy, socialite, and mankind's mentality as a whole. ***Carlos Hoevel*** (Catholic University of Argentina, Buenos Aires, Argentina) argues in "Spiritual Meaning of the Economic Crisis" that the economic and financial crisis that began in 2008 has a spiritual dimension. Behavioral economists believe that the severe and prolonged crisis was caused by a series of psychological irrationalities in the behavior of players (borrowers, loan originators, investment banks, rating agencies, regulators, and end investors). (Bouckaert L & Zsolnai L, 2012)

In "Religion and Spirituality," Jesuit Scholar ***Paul de Blot*** (Nyenrode Business University, the Netherlands) examines the complex relationship between religion and spirituality in "Religion and Spirituality." While spirituality is concerned with the soul or spirit, religion is concerned with the existence of a superhuman ruling power, particularly God or gods, which is frequently manifested via worship. Religion is a systematic human approach to supernatural reality that usually includes a set of narratives, beliefs, and behaviors. On the other hand, spirituality is a multifaceted search for a transcendent purpose to life that is founded on our human experience. (Luk Bouckaert & Laszlo Zsolnai, 2012).

Veerle Draunlans (Tilburg University, the Netherlands, and The Catholic University of Leuren, Belgium) demonstrates in "Gender and Spirituality" that a gender approaches to spirituality mirror the divided and dichotomous thinking's significant repercussions. It calls for global solidarity and a more prominent and positive role for physical experiences in spiritual life, as well as experiences rooted in men's and women's pragmatic daily lives. (Bouckaert L & Zsolnai L, 2012)

Andrew Newberg (Thomas Jefferson University and Hospital, Philadelphia, USA) argues in "Neuroscience of Spirituality" that for successful synthesis of neuroscience and spirituality, an understanding and preservation of scientific fundamentals must be combined with an analysis of the cognitive elements of religious and spiritual experience. This necessitates a neuropsychological examination of religious and spiritual experiences. (Luk Bouckaert & Laszlo Zsolnai, 2012).

III. Methods and materials

Spirituality is the basis of human and social culture, which has a strong influence on the formation, transformation, and crisis of a particular economic and social system, the enrichment of which can lead to the development of society and, conversely, to the impoverishment of spirituality. The spiritual and practical actions of man can explain the question of harmony between spirituality and the economy. We can express it based on the following comparative table:

Table 1

Simple manifestations of a person's spiritual image influence his behavior

The behaviour of a spiritually high person	The behaviour of a spiritually poor person
Creativity, variety of ideas	Addiction to evil ideas
Enthusiasm, hard-working	Coldness, laziness, carelessness
Caring for people	The dominance of selfish views
Setting high goals	Lack of purpose, uncertainty about the future
Flawless task execution	Incomplete or incorrect execution of tasks
Respect for the Elders and Respect for the Younger	Work for your benefit
Ethical and aesthetic outlook	Evil intentions, nefarious goals

Source: Created and developed by the author

Its social nature explains the harmony of spirituality with the economy. Because spirituality and economics arise in society as a social phenomenon. Spiritual poverty also directly reflects the disgusting image of a social phenomenon and has a negative impact not only on nature and society but also on economic processes. We can analyze this using the terms "spiritual" and "non-spiritual economy". We can assess the integral aspects of the spiritual economy as a set of many economic processes in which they carried economic processes out not only for good and for harm but also to achieve the noble aspirations of humanity.

The main goal of enterprises' and organizations' products and services is not to harm human health, not to emit harmful gasses and emissions, the widespread use of green technologies, the production of goods that do not harm local traditions (clothing), human health is reflected in such economic activities as growing and processing consumer goods that bring more benefits. An economy that is out of sync with spirituality is analogous to the socio-cultural and economic development of society, resulting in a sharp change in the established and accepted traditions of nations and peoples, as well as the formation or deterioration of the younger generation's upbringing.

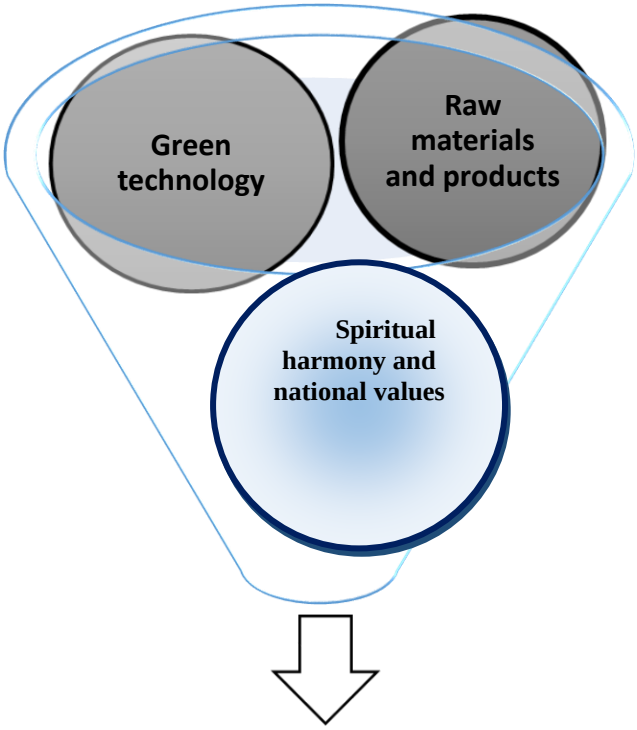

Figure 1. Harmony between the economic and Spiritual/cultural worldviews
Source: Created and developed by the author

Almost all economic processes necessitate interactions with social processes. These processes can never be mutually exclusive. If economic activity harms the spiritual and cultural ties that exist between these ties, it will not only harm society but may also lead to a decline in economic development. This means that the primary goal of a business should not be the production of goods or services. It also necessitates careful consideration and analysis of how the goods sold here affect consumers' cultural and spiritual worldviews. The protection of the national economy and spirituality is especially important in times when globalization and the spread of mass culture have a significant impact on society, national spirituality, and culture.

IV. Analysis and outcomes

A strong society and the highest moral qualities

Several changes are occurring in socioeconomic relations as a result of the global pandemic (Covid-19) that humanity is currently experiencing. It is clear that mass protests against quarantine measures in some countries around the world result in the appearance of iodized images on the spiritual and cultural appearance of the crowd gathered there. Such examples undoubtedly aggravate these countries' economic crises. World business leaders were faced with impossible choices. Should you begin layoffs now or wait for government funds? Pay the rent or the payroll? Which factories will be closed first? How are we going to get rid of this entire inventory? Is it better to start Chapter 11 now or later? Even as airlines and retailers went bankrupt, oil prices plummeted below zero, and death tolls skyrocketed, there were some pandemic bright spots. Pfizer and AstraZeneca have been extremely busy, while Amazon cannot find enough workers. And, as we've learned to live more and more of our lives as digital simulations, it's still surprising that semiconductor behemoths like TSMC and Nvidia can't produce chips fast enough. Forbes' Global 2000 list has been measuring the world's largest public companies in four equally weighted metrics since 2003: assets, market value, sales, and profits. Last year's edition provided insight into the early economic consequences of the Covid-19 pandemic. We are now seeing the results of a year of market turmoil and unfathomable human loss. The outcomes are not entirely negative. With central banks allowing negative interest rates, investors have concluded that equity investing is the only option. Naturally, the global stock market has increased by roughly 48% in the last year. So, while the Forbes Global 2000 companies' sales and profits are down, their total assets and market value are up. The minimum market value for inclusion on the 2021 list was $8.26 billion, up from $5.27 billion in 2020. (Andrea Murphy & Isabel Contreras, 2022). However, we continue to see the opposite in countries that have preserved their spiritual and cultural values and are still treated with dignity. This means that spirituality, as a reflection of society, is a complex set of strong spiritual, ethical, and aesthetic views that lead to either development or crisis.

Many people face fierce competition in a market economy, attempting to fully satisfy their well-being, biological needs, and social status. In a highly competitive environment, however, they are prone to a variety of undesirable actions when they are aware of their lack of knowledge and experience. These include familiarity, corruption, victory lust, inability to control one's desires, disregard for others, or boasting of one's hegemony, and the fact that such people participate in this

or that economic activity directly harms all normal economic relations. They prevent the economy from functioning normally. To achieve their evil intentions, they sell their conscience, spirituality, and culture. This is the most important factor in a person's spiritual and cultural poverty, and it directly leads to socio-economic poverty. A strong market economy promotes optimal economic processes in the face of intense competition, mutually beneficial relationships, and limited resources. Spiritual poverty, on the other hand, does not allow strong market mechanisms to function normally, or it leads to a sharp deterioration and economic impoverishment of society.

According to B.P. Shulindin, ***"All forms of social consciousness, although in various forms, reflect social life and, above all, material social relations, which has the opposite effect. The joint evolution of the materialistic and idealistic directions is a dialectical interaction of spirituality and the economic sphere of society"***. (A.Razzakov & Sh.Toshmatov & N.Urmonov, 2002) In the transition from a strong state to a strong civil society, the formation of a strong spirituality and a strong economy are closely interconnected. The presence of people with high moral qualities in society prevents various conflicts and riots from escalating. Along with the COVID-19 pandemic, mass protests and collective conflicts in countries around the world has resulted in complex social crises. Analyzing this with the help of the following vivid examples, we can see how difficult situations can arise in a society devoid of spiritual beliefs. Tens of thousands of people protested against COVID-19 measures and government sanctions against the unvaccinated in Australia, France, Italy, and Greece on Saturday, sparking clashes with police. The protests highlight the global conflict between the World Health Organization and other public health agencies' advice and people who refuse to be vaccinated for various reasons. In the current situation, no country in the world could resolve the Protestant conflict peacefully. People with spiritual and moral qualities would not instigate such widespread conflict. And such national responsibilities should have been considered before the conflict began.

Example 1: Government-imposed quarantine restrictions to prevent the rapid spread of COVID-19 around the world have resulted in mass conflicts. This included mass protests in the United States on April 18, 2020, in Michigan, Ohio, Texas, Maryland, Kentucky, and Wisconsin, where protesters created artificially large traffic jams from several cars, and ***"Give me the right to get a coronavirus, but don't restrict my freedom"*** ("reopen," i.e., stop isolation). During the protests, it was easy to see various violations, humiliations of human dignity, and the disgusting state of society's moral image. (Odashev I.M, 2021)

Example 2: Such large-scale conflicts and unauthorized protests against restrictions on citizens' rights and freedoms in Berlin began on April 19. Protesters first gathered in Rosa Luxemburg Square for a "sanitary protest," then moved to the Kreuzberg neighborhood. Protests against mass quarantine (isolation regime) increased on May 9. Thousands of people from Stuttgart attended. Protests took a smaller but more aggressive form in Berlin. Around 3,000 people turned out for the demonstration in Munich's Marienplatz. In Frankfurt, about 500 people demanded the abolition of the mask regime, sparking mass protests. A spiritual community of individuals would never have created such a situation. (Odashev I.M, 2021)

Example 3: The unrest in Italy began on October 22 in Naples, after a curfew was imposed in the Campania region, and spread throughout the region the next day. After Prime Minister *Giuseppe Conte* imposed new strict restrictions on October 25, protests and riots spread to Milan, Turin, and Rome. The protests were not peaceful, resulting in riots, clashes with police, and looting. The main causes of these mass conflicts are a lack of a targeted governance approach, and a lack of initial and targeted public awareness campaigns about the pandemic, or poor organization. The inadequacy of human spiritual qualities, on the other hand, can explain crowd behavior. (Odashev I.M, 2021)

V. Conclusions and recommendations

In conclusion, I would like to emphasize that Uzbekistan, which is famous all over the world for its multinational people with a thousand-year history, culture, and spiritual views, are a mirror of their spiritual worldview. Therefore, the formation and implementation of a modern economy and its historical, cultural, and spiritual foundations must be an integral part of today's complex global economic processes. In the further development of international economic relations between the countries of the world, there is a need for a spiritually rich economy as an important tool in creating a world economy that can respond to any unexpected challenges. I believe that such a spiritual economy is very important for today's world, and I would like to make the following conclusions and recommendations for achieving and implementing it:

✓ Development and continuous monitoring of all measures to prevent corruption in implementing business processes;

✓ Identify spiritual and cultural factors that affect the level of the shadow economy, and conduct regular educational work to develop the spiritual consciousness of a person;

✓ When establishing economic ties with the countries of the world, more attention should be paid to the formation of interethnic and intercultural ties;

✓ Ensuring the harmony of spiritual values in shaping the foundations of the modern economy;

✓ To look into the historical genesis of spiritual ideals, as well as the techniques and criteria that have guided their evolution to the present day;

✓ Formation and implementation of targeted mechanisms that ensure the main role of spiritual views in the daily activities of economic entities;

✓ Formation of an environment of interest in economic values, and criteria in economic activity;

✓ In-depth examination of the works of important historical leaders in the field of economics that have been passed down to us, as well as an assessment of their relevance to the present economy.

References

1. Khajiev B.D., Abdullaeva R.G., Mamaraximov B.E. Educational-methodical complex on the subject "History of economic doctrines". For a lecture. Tashkent: Economics, 2016. p.259.

2. Yuldashev K., Muftaydinov K., "From the history of economic doctrines". (On the example of Shark economic thinking) T., 2000.

3. Razzakov A., Toshmatov Sh., Urmonov N, "History of Economics", Finance, T., 2002.

4. Mahmudov T., "About the Avesto". T., Shark, 2000.

5. Karimov I, "High spirituality is an invincible force". Tashkent, Manaviyat, 2008.

6. In Central and Eastern Europe, Journal of the Corvinus University of Budapest, Society and Economy Vol.34, No.3 (2012), pp.489-514 (26 pages) Luk Bouckaert and Laszlo Zsolnai.

7. "Jamiyat va boshqaruv" Journal, 2021 №1 (91), pp.122-127, Odashev I.M.

8. Xalq so'zi online newspaper, Boriy Alixonov, Chairman of the Executive Committee of the Central Council of the Ecological Movement of Uzbekistan, Deputy Speaker of the Legislative Chamber of the Oliy Majlis of the Republic of Uzbekistan; Abdurakhim Qurbanov, Deputy of the Legislative Chamber of the Oliy Majlis of the Republic of Uzbekistan, 2015

9. Tolipov U.K, "Spiritual and moral bases lifelong education in the republic of Uzbekistan", Nauki ob Obrazovanii,

10. Forbes, "The Global 2000", Andrea Murphy, and Isabel Contreras, 2022

11. Bouckaert L, and Zsolnai L, 2012. "Spirituality and Business: An Interdisciplinary Overview" Society and Economy 34 (2012) No. 3. pp. 489-514

12. https://en.wikipedia.org/wiki/Protests_against_responses_to_the_COVID-19_pandemic

13. https://www.bbc.com/news/world-europe-59363256

14. https://www.dw.com/en/what-is-behind-the-covid-protests-across-europe/a-60074426

MEDICAL SCIENCES

RESULTS OF IMMUNOLOGICAL STATUS BEFORE AND AFTER ENDOSCOPIC SURGERY IN PATIENTS WITH CHRONIC RHINOSINUSITIS

Khushvakova N.,
MD Professor Head of the Department of Otorhinolaryngology No. 1
Samarkand State Medical University
Samarkand, Uzbekistan.
Burkhanov U.,
Assistant of the Department of Otorhinolaryngology No. 1
Samarkand State Medical University
Samarkand, Uzbekistan.
Nurmuhamedov F.
Assistant of the Department of Otorhinolaryngology No. 1
Samarkand State Medical University
Samarkand, Uzbekistan
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Abstract

The article presents data on the dynamics of changes in the level of cytokines in blood serum and nasal secretions in patients with chronic rhinosinusitis. 178 patients were studied. The study showed that chronic forms of rhinosinusitis develop against the background of multidirectional shifts in the concentration of anti-inflammatory cytokines in blood serum and nasal secretions. The patients were divided into 2 large groups. After the postoperative period, patients of the main group using LILT methods showed a tendency to normalize the levels of all classes of serum immunoglobulins IgA decreased by 44.3%, IgM by 61.2%, IgG by 14.0% and secretory immunoglobulin A by 18.0%. The dynamics of changes in each indicator indicated a decrease in the immune load on the body.

Keywords: rhinosinusitis, endoscopic surgery, low-intensity laser therapy, immunoglobulin, mucociliary transport.

Relevance. Rhinosinusitis is an inflammatory disease of the mucous membranes of the nose and nasal cavities, almost always caused by secretory stagnation and impaired aeration of the nasal cavities. Inflammation of the nasal cavities is one of the most common pathologies among the ENT organs. In the last decade, the incidence of rhinosinusitis has increased almost 3 times. According to epidemiological studies, 15% of the adult population and 5% of children suffer from inflammatory diseases of the nasal cavities. The incidence of chronic inflammatory diseases of the nasal cavities remains high and still does not have a declining principle. Consequently, there has been a recent increase in morbidity by 1.5–2.0% [1].

The modern ecological environment is characterized by increasing pollution of the atmosphere by motor transport, industry and chemical organizations. Oversaturation with inhalation pathogens leading to inflammation or sensitization of the organism, as well as various physical factors (ionizing radiation, electromagnetic waves, ultraviolet rays, etc.) is observed [6]. Chemicals also lead to an increase in negative effects, as they act as irritants to the barrier tissues of the respiratory system, thereby facilitating the passage of pathogens through the UNY mucous membrane into the body's internal environment. All this leads to a decrease in immunoreactivity of the population, an increase in respiratory diseases and their transition to a chronic form [2].

Disorders of the mechanical component of protection - i.e. mucociliary transport - lead to SRS. The condition of BYOBs is primarily governed by the efficient functioning of the mucociliary apparatus. The MA of the mucous membrane is damaged by viral and bacterial infections or other exogenous effects, as a result of which microorganisms begin to multiply in sterile cavities, multiply intensively, and lead to the development of acute rhinosinusitis [4].

Local immunity is provided by: BYoB aeration and blood circulation, mucociliary clearance, mucus formation, cellular, chemical and immunological mechanisms of the body's defense against various microorganisms. It is also known that the nasal mucosa has IgA-producing cells located in the mucous areas and IgG-producing cells located in the epithelial layer [3].

In recent years, the development of laser research in medicine has become a strategic task for the treatment of various diseases in the leading countries of the world. The ability of laser beams to generate high concentrations in space over a certain frequency range over time has opened up new prospects for biotechnology. Currently, laser technology is used in all areas of medicine: the concept of laser medicine has been formed both in the field of fundamental research, as well as in clinical practice. At the same time, the development of laser medicine is evolving across three main areas: laser surgery, laser therapy, and laser diagnostics [5].

The aim of the study is to examine the immunological status of patients with chronic rhinosinusitis before and after endoscopic surgery, as well as to evaluate the results.

Materials and inspection methods. Clinical examinations covered 178 patients with proliferative form

of chronic rhinosinusitis: All patients from 2018 to 2021 were examined and treated in the inpatient department of the ENT Department of SamDTU Clinic No. 1 and the private medical center "SAOMED" in Samarkand.

After endoscopic surgery, patients in the main group were treated with LILT on a Mustang 2000 device (Figure 1).

Figure 1. Introduction of MUSTANG 2000

In the postoperative period, the use of LILT is performed in order to enhance the immune system, improve local blood circulation and improve the quality of wound healing. For this purpose, the treatment is performed while the patient is sitting, no analgesia of the nasal mucosa is required, endonasal wavelength 0.89 μm, maximum radiation output 5 W is performed using a special nasal cavity ENT nozzle, lower and middle nasal with ENT nozzle The tracks are inserted and held for 1.5–2 minutes. The course of treatment - 5–7 days (Fig. 2).

Figure 2. Technique of conducting nasal cavity LILT.

Blood, plasma, and serum served as the object of nasal secretion testing. Blood was drawn from the elbow vein at lunch. Serum or plasma was isolated by conventional methods. To remove the wash from the nasal cavity, a dry cloth swab was placed in each common nasal passage of the patient for 10 minutes, and after it was removed from the nose, 1 ml of 0.9% sodium chloride solution was placed in a preservative solution. Thirty minutes later, the tampons were thoroughly compressed, and the obtained, washed was used for inspections. The standardization of the washes was carried out by spectrophotometric control at a wavelength of 280 nm - "dilution - concentration".

Serum, blood plasma, and nasal secretions were taken at the same time, on the day of admission or hospitalization, as well as before the end of the course of treatment and response, usually 5-7 days in the hospital. All samples were frozen in Eppendorf-type solutions and stored at -20 ° C until use. Determination of Ig and its subclasses, as well as slgA, belonging to classes A, M, G, was carried out using the solid-phase IFA method, using binary antibody reagents.

Results and discussions. Based on the data obtained, we concluded that once a day for 5-7 days, apply PILT continuously for 2-3 minutes with infrared rays with a power of 5 mW, wavelength 0.89 μm, separately for each nasal cavity. leads to a rapid restoration of the functional state of the cavity.

Evaluation of the endoscopic picture performed in the dynamics showed that statistically reliable recovery of nasal functional status and immunologically normal blood and nasal secretions was faster in the main group of patients undergoing PILT in the postoperative period, without any additional physiotherapeutic treatment, compared with the control group. Tumors of the nasal mucosa disappeared by 5.3 ± 0.4 days in the main group of patients and by 8.7 ± 0.6 days in patients in the control group ($p < 0.05$).

Table 1

Serum outcomes of control group patients before and after treatment

Criteria g/l	Ig content before treatment is g/l		The amount of Ig after treatment is g/l	
	pointer	reliability	pointer	reliability
IgA	10,02±0,3	p<0,05	10,9±0,1	p<0,05
sIgA	0,14±0,05	p<0,05	0,23±0,03	p<0,05
IgM	3,5±0,7	p<0,05	1,7±0,2	p<0,05
IgG	10,35±1,6	p<0,05	14,0±1,4	p<0,05

Note: p are statistically significant differences between conventional and proposed therapy

Table 2

Serum outcomes of the main group of patients before and after treatment

Criteria g/l	Ig content before treatment is g/l		The amount of Ig after treatment is g/l	
	pointer	reliability	pointer	reliability
IgA	11,07±0,1	p<0,05	5,3±0,3	p<0,05
sIgA	0,25±0,02	p<0,05	0,18±0,03	p<0,05
IgM	4,63±0,3	p<0,05	1,85±0,2	p<0,05
IgG	12,45±1,2	p<0,05	15,2±1,4	p<0,05

Note: p are statistically significant differences between conventional and proposed therapy

Table 3

Outcomes in nasal secretion of control group patients before and after treatment

Criteria g/l	Ig content before treatment is g/l		The amount of Ig after treatment is g/l	
	pointer	reliability	pointer	pointer
IgA	2,58±0,9	p<0,05	3,9±0,2	p<0,05
sIgA	0,10±0,05	p<0,05	0,15±0,03	p<0,05
IgM	1,49±0,6	p<0,05	1,7±0,2	p<0,05
IgG	15,34±1,7	p<0,05	17,0±1,4	p<0,05

Note: p are statistically significant differences between conventional and proposed therapy

Table 4

Outcomes in nasal secretion of the main group of patients before and after treatment

Criteria g/l	Ig content before treatment is g/l		The amount of Ig after treatment is g/l	
	pointer	reliability	pointer	pointer
IgA	3,01±0,1	p<0,05	4,5±0,3	p<0,05
sIgA	0,14±0,02	p<0,05	0,25±0,03	p<0,05
IgM	1,53±0,3	p<0,05	1,8±0,2	p<0,05
IgG	16,25±1,3	p<0,05	17,5±1,5	p<0,05

Note: p are statistically significant differences between conventional and proposed therapy

After the proposed therapy, the concentration of sIgA, IgM, IgG in the nasal secretion increases. Undoubtedly, this pattern is associated with increased local secretion of immunoglobulins.

Thus, the table shows that the use of PILT in the postoperative period in the main group of patients is based on the principle of normalization of serum immunoglobulins of all classes, including IgA by 44.3%, IgM by 61.2%, IgG by 14.0%. and secretory immunoglobulin A decreased by 18.0%. The dynamics of changes in each indicator indicates a decrease in the immune load on the body.

Conclusion. Based on this study, it can be concluded that the success of treatment of patients with proliferative form of chronic rhinosinusitis depends not only on the quality of the surgical intervention performed, but also on the accuracy of the postoperative period, aimed at restoring the nasal mucosa and its functions.

Based on the results obtained, it can be said that after the endoscopic surgery and the course of PILT, the condition of the nasal mucosa in patients and almost rapid recovery of the body's immunological parameters are observed.

References

1. Burkhanov U. M., Khushvakova N. D. Сурункали риносинусит билан касалланган беморларда эндоскопик операциядан кейинги даврда антимикроб нейтрофил пептидларини ўрганиш //Journal of Biomedicine and Practice. – 2020. – Т. 5. – №. 5.

2. Ulugbek B., Nilyufar K. Clinical experience of laser therapy use in rhinosinusitis patients after endoscopic operations //International Journal of Psychosocial Rehabilitation. – 2020. – Т. 24. – №. 6. – С. 9843-9848.

3. Хушвакова Н., Бурханов У. Сурункали риносинусит билан оғриган беморларда эндоскопик жарроҳлик амалиётидан сўнг фагоцитозни нейтрофил бўғини кўрсатгичларини баҳолаш //Журнал вестник врача. – 2020. – Т. 1. – №. 4. – С. 120-123.

4. Хушвакова Н.Ж., Бурханов У.М. ДИНАМИКА ИЗМЕНЕНИЙ УРОВНЯ ЦИТОКИНОВ В СЫВОРОТКЕ КРОВИ И В НАЗАЛЬНЫХ СЕКРЕТАХ У БОЛЬНЫХ С ХРОНИЧЕСКИМИ РИНОСИНУСИТАМИ// Проблемы биологии и медицины. - 2021. №3. Том. 128.

- С. 141-143. DOI: http://doi.org/

5. Шаматов И. Я., Хушвакова Н. Ж., Бурханов У. М. Эндоскопическая ультразвуковая дезинтеграция при гипертрофическом рините с одновременной коррекции устья слуховых труб //БИОЛОГИЯ ВА ТИББИЁТ МУАММОЛАРИ PROBLEMS OF BIOLOGY AND MEDICINE ПРОБЛЕМЫ БИОЛОГИИ. – 2019. – С. 144.

SMART HEALTHCARE SYSTEM FOR CARDIOVASCULAR PATIENTS USING MACHINE LEARNING

Kondoro A.,
Department of Computer Studies, Dar es salaam Institute of Technology, Dar es salaam, Tanzania
Tongora E.F.
Department of Computer Studies, Dar es salaam Institute of Technology, Dar es salaam, Tanzania
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Abstract

Cardiovascular refers to anything relating to the heart and blood vessels. The flawed current leads to multiple patients not receiving the right care depending on their current health status, leading to critical cases and even death. Apart from the main objective of developing a smart healthcare system for cardiovascular diseases, other specific objectives include modelling a machine learning algorithm for natural language processing, modelling a machine learning algorithm for health recommendation, developing a preliminary diagnosis subsystem, developing a follow-up report management subsystem, integrating geolocation subsystem, evaluating the system. The study has proposed new method, the Recommendation and Optimization-Based Decision Support System Algorithm, constructs an expert system with an explicit knowledge base. The algorithm obtains knowledge through domain experts. In response to a query, the algorithm gives a customized recommendation, using an optimization step to help the patient maximize the probability of achieving the desired outcome. In this findings, the recommended behavioural factors are the optimal solutions that maximize the desired effect's likelihood. With proper formulation, this expert system can combine multiple factors like age and body mass index to give proper self-preliminary diagnosis support at the individual level.

Keywords: Cardiovascular, Machine learning, Healthcare

I. INTRODUCTION

The first president of the United Republic of Tanzania, the late Mwalimu Julius Kambarage, once stated the country's three main enemies were poverty, illiteracy, and diseases. A country must address several challenges for a stable economy so that its people's health is on the agenda. Diseases can slow the country's economy as countries depend on human resources to manufacture several economic tasks. A disease is a pathological process, most often physical, as in throat infection or cancer of the bronchus, sometimes undetermined in origin, as in schizophrenia [1]. The disease manifests itself as a disorder and announces its presence in the form of symptoms. Disease phenomena, cases of the disease, the clinical picture, and the course of a disease can be described, objectified, and classified [2]. Diseases are often known to be medical conditions associated with specific signs and symptoms [3]. Tanzania's government has made several efforts through the Ministry in charge of health and social welfare and other organizations to improve the health sector in Tanzania. In 2019, the Ministry of Health, Community Development, Gender, the Elderly, and Children of the United Republic of Tanzania agreed to a new health policy. This policy will reduce the burden of medical costs by ensuring a shift in preventing diseases and infections [4]. The whole situation is because these costs affect citizens at a community and national level. Despite the immense efforts emphasized by Tanzania's government, the increase in cardiovascular disease cases in the country has still been a problem. Cardiovascular disease is a particular abnormal condition that negatively affects all or part of an organism's structure or function, but does not cause any immediate external injury [5]. Furthermore, it is an abnormal heart or blood vessel condition [6]. Cardiovascular disease (CVD) is a general term for conditions affecting the heart or blood vessels. It is usually associated with a build-up of fatty deposits inside the arteries and increased blood clots. It can also be associated with damage to arteries in organs such as the brain, heart, kidneys, and eyes. Cardiovascular diseases develop into conditions that last one year or more and require ongoing medical attention or limited daily living activities or both [7].

The categories of cardiovascular diseases include coronary artery disease, or CAD, which is the most common form of heart disease; the hardening or narrowing of the arteries that lead to the heart characterizes this condition. A heart attack, or myocardial infarction, happens when the arteries leading to the heart become blocked, disrupting blood flow. Congestive heart failure occurs when stiffness in the heart prevents the organ from pumping blood adequately through the body. Heart valve disease happens when any of the four valves in the heart do not open or close properly and interrupt blood flow. Heart muscle disease, or cardiomyopathy, can lead to heart failure. It occurs when the heart muscle becomes more extensive and stiffens, preventing it from pumping blood away from the heart. Sometimes blood can pool in the lungs. Abnormal heart rhythms, or arrhythmia, cause a fluctuation in the heartbeat that happens while at rest [8].

Tanzania, like other developing countries, is experiencing a higher burden of cardiovascular diseases.

According to recent estimates, approximately 33% of the Tanzanian population is affected by cardiovascular diseases. The probability of dying from cardiovascular diseases among adults aged 30 to 70 is approximately 16%. Cardiovascular diseases alone are responsible for 13% of Tanzania's total deaths, and adults aged 25–64 years are particularly affected. Age-standardized cardiovascular disease mortality rates showed higher death rates among Tanzanian men than women (473 versus 382 per 10,000). These rates can be further quantified by the cardiovascular disease death rates of 9–13% between 2012 and 2016. These have been driven by the growing trend of cardiovascular disease risk factors in the country. If there are no strategic measures taken, the mortality rates of cardiovascular diseases in Tanzania are expected to rise by 20 percent in 2020, and this will cause over one million deaths [9]. In other parts of Africa, In Nigeria, the World Health Organization (WHO) in 2016 revealed that non-communicable diseases were estimated to account for 29 percent of all deaths, of which CVDs contributed 11 percent. CVDs that have been increasing over the past 20 years in Nigeria include hypertension, heart failure, and stroke [10]. In South Africa, CVD is responsible for almost 1 in 6 deaths (17.3 percent). Two hundred fifteen (215) people die every day from heart disease or strokes. Every hour in South Africa, five people have heart attacks, ten people have strokes, and of those events, ten people will die [11].

On the North American continent, cardiovascular disease, including stroke, is the leading cause of illness and death in the United States. In this country, an estimated 62 million people have cardiovascular disease and 50 million people have hypertension [12]. In Canada, about 1 in 12 (or 2.4 million) Canadian adults aged 20 and over live with diagnosed heart disease. Every hour, about 12 Canadian adults age 20 and over with diagnosed heart disease die. The death rate is three times higher in adults aged 20 and up with diagnosed heart disease compared to those who do not; four times higher in adults aged 20 and up who have had a heart attack compared to those who do not; and six times higher in adults aged 40 and up with diagnosed heart failure compared to those who do not [13]. Coronary heart disease (CHD) is the second leading cause of cardiovascular death in the Chinese population on the continent of Asia. It accounts for 22 percent of cardiovascular deaths in urban areas and 13 percent in rural areas. Although the mortality from CHD in China is relatively low compared with Western levels, the burden of CHD has been increasing [14]. In 2016, the estimated prevalence of CVDs in India was estimated to be 54.5 million. One in four deaths in India is now because of CVDs, with ischemic heart disease and stroke responsible for >80 percent of this burden [15]. In Japan, there were 750,000 estimated cases of CHD, accounting for 38.7 percent of all heart disease cases, and 1,668,000 estimated cases of CVD, accounting for 65.8 percent of all cerebrovascular disease cases (2,534,000) [16].

On the continent of South America, in Brazil, CVD was responsible for 31 percent of all deaths, with ischemic heart disease (31 percent), and cerebrovascular diseases (30 percent) being the leading CVD causes. Studies have also shown that 37 percent of the 17 million premature deaths associated with non-communicable diseases (NCD) are caused by CVD [17]. Cardiovascular disease (CVD) is the leading cause of death and disability in Argentina. CVD causes approximately 30 percent of all deaths in the country, and ischemic heart disease is the cardiovascular condition with the highest morbidity and mortality rates [18].

Heart and circulatory diseases cause around a quarter of all deaths in the UK; more than 160,000 deaths each year – an average of 450 deaths each day, or one every three minutes in the UK. Around 7.6 million people live with a heart or circulatory disease in the UK, including 4 million men and 3.6 million women. Coronary heart disease (CHD) is the most common type of heart and circulatory disease. It is the most common cause of heart attack and was the single biggest killer of both men and women worldwide in 2019. There are more than 100,000 hospital admissions in the UK due to heart attacks; that is one every five minutes. Around 1.4 million people alive in the UK today have survived a heart attack. More than 900,000 people in the UK are living with heart failure. Strokes cause around 34,000 deaths in the UK each year and are the most significant cause of severe disability. People with a family history of coronary heart disease are much more likely to develop vascular dementia. There are more than 30,000 out-of-hospital cardiac arrests in the UK each year, with a survival rate of less than 1 in 10 [19]. One in three French people has significant risk factors for cardiovascular disease. Around 120,000 heart attacks occur in France every year; around 10% of the victims die within an hour [20].

Heart disease and stroke cause nearly 1 in 3 deaths in the US each year. At least 200,000 of these deaths could have been prevented through changes in health habits, such as stopping smoking, more physical activity, and less salt in the diet; community changes to create healthier living spaces, such as safe places to exercise and smoke-free areas; and managing high blood pressure, high cholesterol, and diabetes [21].

Cardiovascular diseases will be addressed using machine learning and knowledge discovery techniques to create automated, personalized health recommendations that consider patient characteristics and preferences. This type of problem can be found in many domains. Experts are often consulted because they know how to maximize the desired results while considering multiple and sometimes competing factors. The proposed algorithm can simulate these experts by recommending actions that maximize the likelihood of the desired result [22]. Linear regression is a statistical procedure for calculating the value of a dependent variable from an independent variable. Linear regression measures the association between two variables. It is a modeling technique where a dependent variable is predicted based on one or more independent variables. Linear regression analysis is the most widely used of all statistical techniques [23]. The use of regression techniques can determine the relative importance of variables by observing the coefficients' sign and magnitude. Sensitivity analysis provides a way to observe how sensitive a result is to variations in the variables of interest,

thus determining the importance of these variables. The proposed algorithm is a decision tool that can provide suggestions by utilizing captured knowledge and optimizing the chosen action's effectiveness. This algorithm can recommend an action based on multiple variables and the interactions among them.

Instances with known outcomes are used to capture knowledge in the form of a predictive model (classifier) and a validation map that estimates the probability of the desired outcome for any patient/action pair. A query will activate an optimization method that finds the best course of action using the captured knowledge, feasible choices, and information provided about the patient. The optimization process will combine the provided information with the captured knowledge to generate customized health customization [24]. The knowledge extraction tool's objective is to find a proper recommendation under the constraints the patient has provided. The user provides information regarding a patient's characteristics, and then the system can generate a customized health recommendation. This customized recommendation satisfies the given characteristics and identifies the recommendations with the highest probability of the desired outcome. A sound decision-making system should also consider patient factors like tolerance. Practical problems will arise if the only consideration is medical phenomena, and it may get even more challenging if there are other practical concerns like variant symptoms. The solution to this is the need to have a knowledge-based system (KBS) [25]. This knowledge exists in the form of atomic facts about the domain of interest and rules for inferring new facts, but may also be in the form of graphs, trees, or networks. This data is stored in a specific location known as a "knowledge base." Together with the inference engine, the knowledge base system is used to make inferences. Another technique used in case-based reasoning, instead of using a knowledge base, is using case libraries, which contain all previously solved cases. The new case's solution working mechanism involves finding the most similar problems in the case library. d knowledge to generate customized health customization [24]. The knowledge extraction tool's objective is to find a proper recommendation under the constraints the patient has provided. The user provides information regarding a patient's characteristics, and then the system can generate a customized health recommendation. This customized recommendation satisfies the given characteristics and identifies the recommendations with the highest probability of the desired outcome. A sound decision-making system should also consider patient factors like tolerance. Practical problems will arise if the only consideration is medical phenomena, and it may get even more challenging if there are other practical concerns like variant symptoms. The solution to this is the need to have a knowledge-based system (KBS) [25]. This knowledge exists in the form of atomic facts about the domain of interest and rules for inferring new facts, but may also be in the form of graphs, trees, or networks. This data is stored in a specific location known as a "knowledge base." Together with the inference engine, the knowledge base system is used to make inferences. Another technique used in case-based reasoning, instead of using a knowledge base, is using case libraries, which contain all previously solved cases. The new case's solution working mechanism involves finding the most similar problems in the case library.

II. METHODS AND MATERIAL

A. Data Collection

The following methods of data collection are used in this project: Questionnaire, a series of questions designed to elicit/ draw specific information about an area of study or interest. Interview, a conversation with a purpose. Focus Groups, is simply a group interview of people who all have something in common. Records and Documents, is the process of examining existing documents and records of an organisation for tracking changes over a period of time.

B. Methodology

Rapid application development is a software development methodology that uses minimal planning in rapid prototyping. RAD methodology is designed to adapt to changes and accept new inputs, like features and functions, at every development process. RAD uses an Iterative Incremental Model. The Iterative Incremental Model is a particular implementation of a software development life cycle (SDLC) that focuses on initial, simplified implementation, progressively gaining more complexity and a broader feature set until the final system is complete.

The first step is to go through an initial planning stage to map out the specification documents, establish software or hardware requirements, and generally prepare for the upcoming stages of the cycle. The purpose of this phase is to perform a preliminary investigation to evaluate an IT-related business opportunity or problem. The second step, analysis is performed to nail down the appropriate business logic, database models, and the like required at this stage in the project. The third step, the actual implementation and coding process began. All planning, specification, and design docs up to this point were implemented into this initial iteration of the project. After database design, understanding of the variables, entities, and their corresponding attributes, the focus was shifted to bringing this project to life by developing and integrating different system components.

The fourth step, after a build iteration has been coded and implemented, is to undergo a series of testing procedures to identify and locate any potential bugs or issues that have cropped up. After all prior stages were completed, a thorough evaluation of development up to this stage was performed. This evaluation allowed the entire team and clients or other outside parties to examine where the project is at, where it needs to be, what can or should change, and so on.

C. Tools used

MySQL is an Open Source, high performance, feature-rich relational database management software. MySQL performs well as the data size grows, from GB to several TB of data. XAMPP server (X-Cross platform Apache MySQL PHP server). It gives the localhost for hosting the web based locally before hosting to the online servers. VS CODE IDE analyzes your code, looking for connections between symbols across

all project files and languages. Colaboratory, or "Colab" for short, is a product from Google Research. Colab allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning, data analysis and education. AutoML Vision enables you to perform supervised learning, which involves training a computer to recognize patterns from labeled data. Using supervised learning, we can train a model to recognize the patterns and content that we care about in images.

D. Languages used

PHP (Hypertext Pre-processor), is used to build up the web contents part of the project such as database connection, inserting and retrieving data from database.

JavaScript with its libraries like JQuery. It is client side scripting language which can be used to handle all events in client side like validation and loading some part of the page. HTML (Hypertext Markup Language) used to build and display web contents. CSS (Cascade Style Sheet) used styling the layout of the webpages. Python is a general-purpose programming language, so it can be used for many things.

E. Libraries and Web Services

Bootstrap; a free and open-source CSS framework directed at responsive, mobile-first front-end web development. Jquery; a lightweight, JavaScript library. Font-Awesome; A popular way to add font icons to your website. NumPy; the fundamental package for scientific computing in Python. Scikit-Learn is a free software machine learning library for the Python programming language.

Sendgrid API; offers a Web API that allows customers to retrieve information about their accounts such as statistics, bounces, spam reports, and unsubscribes. Teachable Machine; a web-based tool that makes creating machine learning models fast, easy, and accessible to everyone. OpenWeatherMap provides a range of weather-related products in a variable combination of depth and steps of measurement to millions of clients globally.

III. RESULTS AND DISCUSSION

Different platforms and applications have performed different approaches to solve this problem.

- **Ada Health**

Ada is a global health company based in Berlin that operates Ada, an end-user self-assessment app. additionally, the company offers enterprise solutions - Assess, Connect, Handover, and COVID-19. It was founded by Claire Novorol, a British paediatrician, Martin Hirsch, and Daniel Nathrath. Nathrath is a graduate of the University of Houston Law Center. The app, developed by Ada Health, uses a medical knowledge database with artificial intelligence technology to help users understand what might be causing their symptoms and provide guidance about what they should do next [26].

- **Samsung Health**

Samsung Health (originally S Health) is a free application developed by Samsung that serves to track various aspects of daily life contributing to well-being, such as physical activity, diet, and sleep. Launched on July 2 2012, with the new Samsung smartphone, the Galaxy S3, the application was installed by default only on some smartphones of the brand. It could also be downloaded from the Samsung Galaxy Store [27]. Samsung Health is more than just a glorified step or calorie tracker. It can track weight, calorie intake/burn, steps, runs, heart rate, stress levels, caffeine intake, blood pressure, sleep, blood glucose, bike rides, hikes, and a lot more. It is worth noting that not all features are available on all smartphones. So, while one can install it on a wide range of Android phones, not every phone can take advantage of things which are enabled by the hardware on the Samsung Galaxy lineup. Samsung Health's main page is where one will start with the app, as well as where likely spend most of the time. It can be a bit overwhelming at first, but get used to it quickly. It is worth noting that some do not use the phone to get their data, like blood pressure or glucose, for example. This feature assumes one has a third-party monitor to track this particular data. Then input it to Health app manually. It is also likely that one can find apps that work with external devices (like blood pressure monitors) and sync with the Health app to track things more automatically [28].

- **Healthy Heart App**

The Healthy Heart app is a prevention/monitoring app for high blood pressure / high cholesterol patients at risk of heart diseases and their caretakers. It tracks blood pressure, pulse, cholesterol, blood glucose, potassium, medication, and behavioural and environmental factors. This data is invaluable in helping one's doctor pinpoint the cause of the sickness and evaluate the effectiveness of medications. It also provides motivation for individuals to live healthier. The data can be saved to the Ringful online service for backup, analytics, and easy sharing with doctors and family members. In addition, the app provides news articles on the latest research/news on heart conditions every day, and one can share those articles via Facebook [29].

- **Heart Pal**

Heart Pal connects with a separate handheld ECG monitor to record one's heart and help one's medical team determine a diagnosis. Users can see the results, historical data, and waveform for analysis and review. The app uses AI technology to determine whether or not there is an arrhythmia [30]. Heart Pal is a helpful tool for patients and doctors to use to monitor their average blood pressure. The app allows one to log information, display it in charts, and share it with the doctor. One can even monitor the medication with a built-in scheduling feature. The reminders it offers also provide a slew of additional benefits [32].

- **Withings App**

WITHINGS creates devices embedded in easy-to-use everyday objects that connect to a unique app and act as powerful daily health check-ups, as well as tools to help master long-term health goals. With a health companion, be empowered to take action and start mastering vitals. Track one's vitals, weight & body composition monitoring. Reach weight goals with advanced insights, including weight, weight trends, and BMI & body composition. Automatically track one's daily activity and workout sessions with in-depth insights, including steps, heart rate, multisport tracking, connected GPS & fitness level assessment. Improve nights with

sleep-lab-worthy results (sleep cycles, sleep score, heart rate, snoring & more) and uncover breathing disturbances. Monitor hypertension from the comfort of one's home with medically accurate systolic and diastolic blood pressure results, plus reports one can share with the respective doctor to monitor the efficacy of treatment [33].

IV. DATA ANALYSIS

From the findings, it can be concluded that the nature of the conversation between the patient and doctor is mostly close-ended, as depicted by Fig-1.

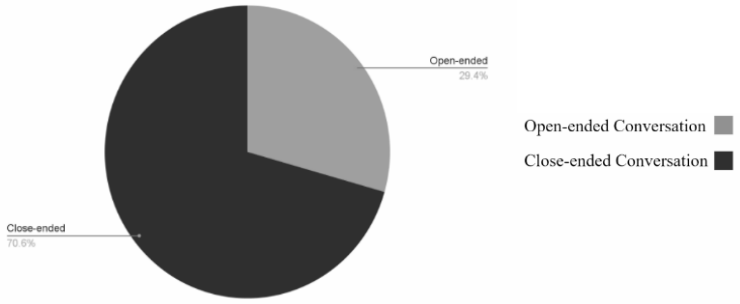

Figure 1. Nature of the diagnosis conversation between doctor and patient.
It can be discussed that most doctors prefer Swahili to English as a medium of conversation due to the familiarity of the patients to the vocabularies of Swahili language, as depicted by Fig-2

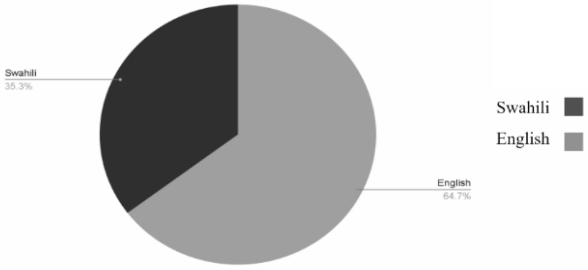

Figure 2. Language most preferable during diagnosis.

It has been discussed that the following can be learnt from the patients; Sentiment, emotions, symptoms, background information, behavioural factors. In addition to that the key factors that one should monitor in cardiac-patient daily life include; diet and nutrition, body exercises, and weather. In case of emergence, the immediate measures to be taken include; ventilation, performing CPR if necessary, and seeking medical attention.

Symptoms of the disease and stage of the disease are the key factors that lead to recommending anything to the patient. The kind of data is to be stored to help with the recommendations; Height, weight, age, location of the victim. The risk level of the patient in a preliminary diagnosis can be calculated using; symptoms (stage of the disease), by using Framingham heart failure score and Dukes criteria and using the CHADVAS score.

Coming up with the conclusion, Framingham criteria is used, if the patient exhibits two major criteria or one major and two minor criteria's and from history and symptoms. The kinds of question asked during diagnosis; heartbeat rhythm, family history of heart diseases, lifestyle risk factors, easy fatigability, limb swelling (Oedema), history of hypertension, chest pain, chronic diseases, difficulty in breathing

During follow-up, the following processes should be considered; severity of signs and symptoms, adherence to meds, modification of lifestyle (diet and exercise), improvement of patient's symptoms (difficulty in breathing and easy fatigability) as well as adherence to nutrition adjustments and medication given.

From diagnosis there will be 3 consecutive follow ups at 7,14 and 21 days from diagnosis. Thereafter it will be monthly and if resolved then every after 6 months. However, the patient can come to the clinic when condition worsens at any time. The nature of a victim follows up, begins with specific scope and ends with a general scope, summary of the whole process, no place to bring new ideas, no redundancy. Report details are represented through elaboration and translation of medical parameters into an understandable simple language to the patient so as he/she can understand what were the findings during investigations and they suggest he/she is suffering from.

- **Proposed System**

The proposed system, is the smart healthcare system for cardiovascular diseases. The system will manage all users seeking cardiovascular medical assistance. The medical assistance can inform of medical information of balanced diet that is various nutritious foods which can help improve the user's well-being. The other form of medical assistance can be in the form of recommendation of different behaviours and general conduct of the user, such as daily exercises, self-diagnosis, and level of activities.

V. CONCLUSION

Machine learning is at the centre of a new enterprise to build computational models of intelligence. The main assumption is that intelligence can be repre-

sented in terms of symbol structures and symbolic operations which can be programmed in a digital computer. There is much debate as to whether such an appropriately programmed computer would be a mind, or would merely simulate one, but machine learning researchers need not wait for the conclusion to that debate, nor for the hypothetical computer that could model all of human intelligence. Aspects of intelligent behaviour, such as solving problems, making inferences, learning, and understanding language, have already been coded as computer programs, and within very limited domains, such as identifying diseases of soybean plants, machine learning algorithms can outperform human experts. Now the great challenge of machine learning is to find ways of representing the common-sense knowledge and experience that enable people to carry out everyday activities such as holding a wide-ranging conversation, or finding their way along a busy street. Conventional digital computers may be capable of running such programs, or we may need to develop new machines that can support the complexity of human thought. Generally, this report has provided all basic information concerning the existence of the problem and the procedures towards solving it. Using these procedures, the system has been designed and realized using machine learning algorithms. Moreover, the system has been tested and appeared to give the expected results. Considering these results obtained after repeated testing, the overall performance of the designed system is good. Therefore, it can be concluded that the designed system is expected to solve the existing problem.

References

1. Boyd, K. M. (2000, June). Disease, illness, sickness, health, healing and wholeness: exploring some elusive concepts. Medical Humanities. Institute of Medical Ethics. doi.org/10.1136/mh.26.1.9

2. Matthias Flatscher, PhD; Torsten Liem, DO (2011, December). What is health? What is disease? Thoughts on a complex issue. The AAO Journal. Osteopathie Schule.

3. UIA. (2021, April). Disease | World Problems & Global Issues | The Encyclopedia of World Problems. http://encyclopedia.uia.org/en/problem/136455

4. Ministry of Health, Community Development, Gender, Elderly and Children Tanzania (2017 October). The National Health Policy 2017.

5. Beaglehole, R., Saracci, R., & Panico, S. (2001, October). Editorial -- Cardiovascular diseases: Causes, surveillance and prevention. International Journal of Epidemiology, 30(suppl 1), S1–S1. https://doi.org/10.1093/ije/30.suppl_1.S1

6. Women of color health information collection (2012, February). Cardiovascular Disease. Office of Research on Women's Health National Institutes of Health. NIH publication no. 12-7680. https://orwh.od.nih.gov/sites/orwh/files/docs/ORWH-HIC-Cardiovascular-Disease.pdf

7. NHS (2017, October). Cardiovascular disease. Nhs. Uk. https://www.nhs.uk/conditions/cardiovascular-disease/

8. Internal Medicine & Pediatric Clinic (2020, February) 6 Types of Heart Disease and What Causes Them. IMPCNA. https://www.impcna.com/blog/6-types-of-heart-disease-and-what-causes-them

9. Wilfrida P. Roman, Haikael David Martin, Elingarami Sauli (2019, August). Cardiovascular Diseases in Tanzania: The Burden of Modifiable and Intermediate Risk Factors. Journal of Xiangya Medicine. AME Publishing Company. https://jxym.amegroups.com/article/view/5361/html

10. Ike SO, Onyema CT. (2020, June) Cardiovascular diseases in Nigeria: What has happened in the past 20 years?. Nig J Cardiol 2020;17:21-6

11. Zuhlke, L. (2016, September). Why heart disease is on the rise in South Africa. The Conversation. http://theconversation.com/why-heart-disease-is-on-the-rise-in-south-africa-66167

12. Virani, S. S., Alonso, A., Benjamin, E. J., Bittencourt, M. S., Callaway, C. W., Carson, A. P., Chamberlain, A. M., Chang, A. R., Cheng, S., Delling, F. N., Djousse, L., Elkind, M. S. V., Ferguson, J. F., Fornage, M., Khan, S. S., Kissela, B. M., Knutson, K. L., Kwan, T. W., Lackland, D. T. (2020, January). Heart Disease and Stroke Statistics—2020 Update: A Report from the American Heart Association. Circulation, 141(9), e139–e596. https://doi.org/10.1161/CIR.0000000000000757

13. Public Health Agency of Canada. (2017, February). Heart Disease in Canada [Education and awareness]. https://www.canada.ca/en/public-health/services/publications/diseases-conditions/heart-disease-canada.html

14. Zhang X, Lu ZL, Liu L. (2008, August). Coronary heart disease in China. Heart. https://heart.bmj.com/content/94/9/1126

15. Ahmad A. Abdul-Aziz, Prabha Desikan, Dorairaj Prabhakaran, Lee F. Schroeder (2019, Mar). Tackling the Burden of Cardiovascular Diseases in India. Circulation: Cardiovascular Quality and Outcomes. https://www.ahajournals.org/doi/10.1161/CIRCOUTCOMES.118.005195

16. Mo, X., Gai, R. T., Sawada, K., Takahashi, Y., Cox, S. E., Nakayama, T., & Mori, R. (2019, June). Coronary heart disease and stroke disease burden attributable to fruit and vegetable intake in Japan: Projected DALYS to 2060. BMC Public Health, 19(1), 707. https://doi.org/10.1186/s12889-019-7047-z

17. Ribeiro, A. L. P., Duncan, B. B., Brant, L. C. C., Lotufo, P. A., Mill, J. G., & Barreto, S. M. (2016, January). Cardiovascular Health in Brazil. Circulation. https://doi.org/10.1161/CIRCULATIONAHA.114.008727

18. Diaz. (2019, September). Current Status and Future Strategies for Cardiovascular Disease in Argentina. Circulation. https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.119.038898

19. British Health Foundation. (2021, October). Facts and figures. https://www.bhf.org.uk/what-we-do/news-from-the-bhf/contact-the-press-office/facts-and-figures

20. Fondation de france. (2017, January). Cardiovascular disease. https://www.fondationdefrance.org/en/cardiovascular-disease

21. Centers for Disease Control and Prevention, Centers for Disease Control and Prevention (2013, September). Preventable Deaths from Heart Disease & Stroke. https://www.cdc.gov/vitalsigns/heartdisease-stroke/index.html

22. Chi, C.-L., & Street, W. N. (2007, October). Building a Hospital Referral Expert System with a Prediction and Optimization-Based Decision Support System Algorithm. 24

23. Kumari K, Yadav S. (2018, May) Linear regression analysis study. J Pract Cardiovasc Sci 2018;4:33-6. https://www.j-pcs.org/article.asp?issn=2395-5414;year=2018;volume=4;issue=1;spage=33;epage=36;aulast=Kumari

24. NCSS. (2019). Linear Regression and Correlation. NCSS Statistical Software.

25. Plant, R., & Gamble, R. (2003, December). Methodologies for the development of knowledge-based systems, 1982–2002. The Knowledge Engineering Review, 18(1), 47–81. https://doi.org/10.1017/S026988890300064X

26. Wikimedia Foundation. (2020 October). Ada Health. Wikipedia. https://en.wikipedia.org/w/index.php?title=Ada_Health&oldid=982813717

27. Wikimedia Foundation. (2021 March). Samsung Health. Wikipedia. https://en.wikipedia.org/w/index.php?title=Samsung_Health&oldid=1014138766

28. Summerson, C. (2018, April). What Can You Do with Samsung Health? How-To Geek. https://www.howtogeek.com/348348/what-can-you-do-with-samsung-health/

29. Ringful. (2010, May). Healthy Heart 2. Download.com. https://download.cnet.com/Healthy-Heart-2/3000-2129_4-75129192.html

30. Google. (2020, March). Heart Pal - Apps on Google Play. Google Play. https://play.google.com/store/apps/details?id=com.choicemmed.hdfecg.heartpal&hl=en&

31. HeartAttackpedia. (2019, June). Heart Pal - Blood Pressure Tracker - Heart Attack App Review. https://heartattackpedia.com/mobile-apps/heart-pal-blood-pressure-tracker/

32. Withings. (2012, July). Withings Health Mate. App Store. https://apps.apple.com/cl/app/withings-health-mate/id542701020?l=en#?platform=iphone

PSYCHOSOCIAL CHARACTERISTICS OF PATIENTS WITH CHRONIC HEART FAILURE

Kodirova Sh.
PhD, Head of the Department of Folk Medicine and Occupational Diseases of the Bukhara State Medical Institute
https://orcid.org/0000-0002-7700-6588
DOI: 10.5281/zenodo.6825815

Abstract

This article discusses the psychosocial issues of patients with coronary heart disease, as a specialist always faces a dilemma: is depression a secondary manifestation of an anxious state (including with panic attacks) or vice versa. It is possible that the patient has mixed symptoms - the manifestations of depression and anxiety disorders are largely similar, and indeed, in general practice, patients with anxiety and depressive disorder are more often observed. At the same time, it is much more important not just to establish a diagnosis of depression or anxiety disorder, but to fully identify all the psychopathological symptoms that a particular patient has.

Keywords: CHF, depression, anxiety, antidepressant therapy.

With special attention to scientific research aimed at improving the clinical and diagnostic basis of mental changes in patients with CHD in the world, and their treatment, determination of clinical and psychological and multifunctional markers in CHD; scientific research is being conducted to develop a technology for assessing anxiety and depressive processes in patients using psychological methods. Along with this, the optimization of objective technologies for assessing clinical and psychological processes and the development of treatment methods indicated for the pathogenesis in patients with coronary heart disease is gaining importance.

Often, the terms "depression" and "anxiety" are used not only in general medical literature, but also in everyday speech. Indeed, this terminology is so diverse that it is allowed to characterize a different state of internal discomfort. In some cases, depression takes the place of melancholy of a severe mental disorder, which leads to complete disability as often as a cerebral stroke, in others, a temporary decline in mood may be due to the defeat of an adored football team. describing their condition, such patients may complain of a feeling of anxiety (or anxiety, nervousness) and at the same time of a depressed mood (or melancholy and sadness). It is difficult to determine these incompatible complaints without anticipating the factors of the patient's life, his social status, personality traits, home and personal history [1,2,3]. The risk of developing depressive and anxiety disorders during life is 15-20%. In 50% of cases in medical practice, depression remains undiagnosed. In general medical practice, masked (somatized) depression is often encountered, which is detected mainly by somatic signs, Women get sick 34 times more often than men; in particular, 10-15% of women develop postpartum depression, 50% have premenstrual syndrome, the prevalence of depression increases with age and the addition of concomitant diseases, the

duration of depression is from several weeks to several years" the main importance in optimizing medical care for patients with depression belongs to doctors of general medical practice. Only 10-15% of patients with depression receive appropriate antidepressant therapy [1].

If a mental disorder is suspected, it is mandatory to conduct a detailed conversation with relatives about his manner and disposition. The most important question in this situation is"How does the patient change?". Otherwise, first of all, it is necessary to investigate how the psychological state has changed, whether the patient has turned out to be apathetic, weak, whether his goals in life have changed, how he behaves in society with others. When for doctors of the therapeutic profile, an increase in body temperature or blood pressure is the first sign of the disease, for psychiatrists, the first calls of the disease are insomnia, a violation of concentration in the form of its decrease. The most important thing for a psychiatrist is patience, perseverance and skills of asking the right questions to the patient [3,4,5].

In addition, it is necessary to remember that the symptoms of neurotic disorders (both depression and anxiety are typical non - psychotic diseases) change over time. So, the symptoms of depression that were observed in the patient last year, this may be replaced by classic signs of an anxiety disorder, and two years later-symptoms of obsessive-compulsive or panic disorder. It is quite possible that statements like "a person with depression" or "a constantly worried person" are often found in the sources – most likely, some people are more susceptible to depression or anxiety disorders than others [14,16]. It is assumed that there is a family predisposition even to mild types of neurosis. So, timid, suspicious and prone to anxious reactions, housewives often explain their situation by the" nervousness " of the mother or the father suffering from alcoholism. It should be remembered that any even the slightest information can be useful when establishing a diagnosis [15].

Finally, in practice, a specialist always faces a dilemma: is depression a secondary manifestation of an anxious state (including with panic attacks) or vice versa. It is possible that the patient has mixed symptoms - the manifestations of depression and anxiety disorders are largely similar, and indeed, in general practice, patients with anxiety and depressive disorder are more often observed. At the same time, it is much more important not just to establish a diagnosis of depression or anxiety disorder, but to fully identify all the psychopathological symptoms that a particular patient has. Practical doctors cannot and do not want to waste time on formulations, and if a patient complains of a depressed mood or increased anxiety, the first question that an experienced clinician will ask him is "how does a depressed or anxious state affect your life?".

Neurotic disorders are often found in the population, and it is with such diseases that therapists often meet. According to some data and estimates, the risk of developing depression, anxiety or mixed disorder throughout life is 15-20%. A study conducted in the UK in 1995 showed that the prevalence of anxiety disorders reaches 30%, mixed anxiety-depressive disorder-8%, including panic disorder, phobias and obsessive-compulsive disorder. It is assumed that patients with increased anxiety account for about a third of all consultations in the general practice of doctors.

The results of studies of depression are just as disappointing: the prevalence of" pure " depression reaches 2-5% in the population, and women are 3-4 times more likely to get sick than men, but in practice, in 50% of cases, depression remains poorly diagnosed. Men often have the so-called "masked" (somatized) depression, which is manifested mainly by somatic symptoms. Patients of this group often abuse alcohol, but do not want to seek help from psychiatrists, including due to certain prejudices that are widespread even in modern society [1,2,3,4].

In addition, 10-15% of women develop postpartum depression, and 50% have premenstrual syndrome, characterized by a combination of somatic symptoms with manifestations of anxiety (or irritability) and depression. The prevalence of depression among alcoholism patients is significantly higher in women (20% compared to 5-10% in men). Finally, there is a direct correlation between the severity of social phobia, anxiety or panic symptoms and the use of alcohol (or tranquilizers) as a pleasant and effective means of complacency.

The prevalence of depression increases with age. Thus, according to research, symptoms of depression are observed in 25-30% of people over 65 years old, and women from this age group (up to 85 years old) are twice as likely to get sick as men. Moreover, in elderly people with several somatic diseases (4 or more), the prevalence of depression is significantly higher (30% compared to 5% among people without concomitant diseases). For example, the prevalence of depression in patients who have suffered a brain stroke is 30-50% [10,13].

Examining patients with signs of depression, anxiety or mixed disorder, the specialist should identify which of the psychopathological symptoms are the main ones. The patient comes to the doctor having his own ideas about the nature and causes of his problems, most often associating them with an unfavorable life event or a chain of events. Neurotic and affective disorders occur not for one or two days (like some acute inflammatory diseases), but for several weeks, months and years, and the causes of their occurrence may indeed be hidden in the past [12]. For example, sleep disorders or persistent headaches are often the result of ordinary professional or family problems, which does not detract from the pathogenetic importance of these "life events", since it has been shown that many of them are factors that provoke the occurrence of a depressive state. At the same time, attempts to detect such provoking factors in the patient's past life are based, as a rule, on a very common point of view, according to which any mental disorder is considered as a consequence of stressful and traumatic situations (including those not realized by patients), and not as a brain disease, as unpredictable as CHD or cholelithiasis.

One of the most time-consuming problems in the diagnosis of mental disorders is the need to distinguish between the factor and the consequence of diseases [9].

Obviously, a depressed mood or depression can be caused by the loss of a familiar job, but people with depression are bad workers, which in itself is the reason for their dismissal. Similarly, patients with agoraphobia associate their fear of crowded places (and not just the fear of open spaces) with a certain stressful event, shyness, etc. But this stressful event could be the first panic attack, after which the patient tends to stay at home and thereby reduce the likelihood of another attack. A panic attack is often accompanied by pronounced somatic symptoms (difficulty breathing, profuse sweating), which forces patients to seek help from doctors of different specialties (cardiologists, gastroenterologists, etc.) in vain attempts to diagnose the disease. Of course, most of all they want to get rid of painful symptoms and get effective treatment, but they avoid contacting a specialist doctor [14,15,21].

The aim of the study is to develop recommendations for improving the definition of clinical and psychological predictors in the early diagnosis of psychological changes and treatment methods in patients with coronary heart disease.

Materials and methods

The analysis of cardiovascular risk factors and psychosocial factors was carried out in 120 patients with coronary heart disease (CHD) who were on outpatient dispensary observation in the conditions of the city polyclinic No. 9 of the city of Bukhara. The diagnosis of coronary heart disease, stable angina pectoris (SSN), functional class (FC) II-III was confirmed by the results of a clinical, laboratory and instrumental study in accordance with National clinical Guidelines. The average age of men was 58.4 ± 5.2 years, women-61.7± 3.8 years ($p<0.001$), the duration of the coronary history was 2.8 ± 3.3 years. All patients underwent instrumental studies, including electrocardiography (ECG), bicycle ergometry (VEM), echocardiography (EchoCG) with color duplex scanning. ECG with registration in 12 generally accepted and additional ones. A 6-minute walk test was used to determine exercise tolerance (TFN) and blood pressure response (BP). The results of TSH corresponded to the clinical manifestations and FC of SSN at the time of the examination.

In addition to the generally accepted clinical studies, a survey was conducted on the hospital Anxiety and Depression Scale HADS (The hospital Anxiety and Depression Scale Zigmond A. S., Snaith R. P.) designed for the primary detection of depression and anxiety in general medical practice. The HADS scale for determining the level of anxiety and depression does not cause difficulties for the patient and does not require a long time to fill in and interpret the results. A comparative analysis of groups of CHD patients with depression and without depression found statistically significant differences in a number of clinical and functional manifestations of stable angina pectoris, cardiovascular risk factors, psychosocial factors, and gender of patients. Statistical analysis of the data was carried out using the Statistica 6.0 application software package. The significance of the differences in the groups by the average value of the indicator was carried out using the Student—Fisher criterion. In all statistical analysis procedures, the critical significance level (p) was equal to 0.05. The average sample values are represented by M± m, where M is the arithmetic mean, m is the error of the average.

Results and their discussion

According to the questionnaire, 32 (26.6%) had depressive disorders corresponding to the level of depression from 8 to 10 points, corresponding to mild and moderate manifestations of depression according to the level of the evaluation scale from 7 to 11 points. This was the basis for the division of patients into 2 groups. The main group consisted of 32 patients with SSN and clinical depression (average score of 10 ± 0.82). In the comparison group consisting of 88 patients with SSN without depressive disorders, the average score did not exceed 7.41 ± 0.84. Depression was found in almost every fourth patient with coronary heart disease. A comparative analysis of groups of patients with depression and without depression found statistically significant differences in a number of clinical and functional manifestations of CVD, cardiovascular risk factors and the most significant psychosocial factors confirming the adverse effect of depression on the course of coronary heart disease.

Table 1.

Clinical characteristics of CHD patients depending on the presence or absence of depressive disorders and the gender of patients (M ± t)

Indicator	Patients with SSN with depression on the HADS scale		Patients with SSN who do not have depression on the HADS scale	
	Men (n = 12)	Women (n = 20)	Men (n = 35)	Women (n = 53)
Average age, years	57,06±4,36	57,84±5,47	55,13±4,76	59,15±3,52
Duration of IHD, years	5,48±1,85	5,76±2,07	3,84±1,99	3,76±1,89
FC of angina pectoris: II III	 3 (25%) 9 (75%)	 11 (55%) 9 (45%)	 8 (24,2%) 2 (5,7%)	 34 (64%) 19 (35,8)
Post-infarction cardiosclerosis	4 (33,3%)	5 (25%)	2 (5,7%)	5 (9,4%)
Хирургическая реваскуляризация миокарда	2 (16,6%)	1 (5%)	1 (2,8%)	3 (5,7)
Type 2 diabetes mellitus	3 (25%)	8 (40%)	3 (8,5%)	5 (9,4)
Number of seizures per week	2,49±0,82	1,46±0,55	1,40±0,76	1,35±0,85
Low income	3 (25%)	2 (%)	5 (14,3%)	7 (13,2%)

As can be seen from the table in patients without depression, the duration and severity of the disease depends on the psychoemotional state of the patient, and the number of attacks per week in patients with depression was on average 2.49±0.82 in men, 1.46±0.55 in women.

Analysis of the results of psychological tests conducted in patients with coronary heart disease in the control group showed that when evaluating the hospital scale of anxiety and depression (HADS), the HADS anxiety index in patients with FC II and FC III was 6.7±0.8 and 7.3±0.9 points.

The indicator of HADS depression in patients with FC II and FC III, this indicator was 6.3±0.9 and 9.1±1.1 points and exceeded the indicators of patients with FC I by 40.3% and 54.8%, respectively.

The presence of symptoms of depression was reflected in the overall clinical picture and was manifested by a worsening of the course of SSN, an increase in angina attacks, instability of blood pressure, a decrease in compliance and self-esteem, dissatisfaction with their physical condition, a tendency to self-reproach, especially in men. Patients with CHD with depression were characterized by a reduced mood background, pessimism, depression, fixation on psychotraumatic events, anhedonia phenomena, psychosomatic reactions, vegetative symptoms and extracardial manifestations (feelings of lack of air, fear, cephalgia, insomnia, pain of different localization). These symptoms make it difficult not only to detect CHD in patients with depression, but also to treat it. The indication for the appointment of antidepressant therapy (ADT) in this sample was the level of depression corresponding to the severity of its clinical manifestations.

In order to predict the progression of CHF, a calculator program has been developed to determine the prognosis of the course of CHF, taking into account the clinical criteria of the disease, the parameters of the psychological status, including an assessment of the significance, diagnostic value and prognostic significance of individual diagnostic criteria with the construction of a mathematical model of signs. To assess the individual risk stratification of the patient, a diagnostic table was compiled to identify the probability of an error-free prognosis and assess the severity of the patient, which makes it possible to determine the individual prognosis of the progression of CHF. To assess the significance of the parameters in predicting the course of CHF, a method based on the theory of feature recognition with a probabilistic approach was used. The method allows you to determine the diagnostic value of features by calculating diagnostic coefficients.

Taking into account individual clinical criteria and indicators of psychological status, a diagnostic table has been developed to identify unfavorable predictors of the course of the disease and the psychological state in patients with CHF who have suffered a myocardial infarction. To assess the significance of these indicators, the Bayes method was used, based on the theory of probabilistic determination of features. Using this method, the possibility of determining the informative value of each feature and calculating diagnostic coefficients was used. Based on the assessment of the importance, diagnostic and prognostic value of each diagnostic criterion, a mathematical model was developed, which served as the basis for the development of a program to identify unfavorable predictors of disease progression and psychological status.

The assessment of the sensitivity, specificity and prognostic significance of the detection of each trait was carried out on the basis of a generally accepted matrix and the corresponding formulas.

Sensitivity (Se) – the probability of detecting an unfavorable course of CHF when detecting a sign, was determined as $Se = a/(a+c) \times 100$ %. Specificity (Sp) – the probability of the absence of a trait in healthy individuals, was determined as $Sp = d/(b+d) \times 100$ %. The prognostic significance of detecting the trait (PV+) for determining the course of CHF was calculated using the formula: $PV+ = a/(a+b)$.

These indicators were selected by us to assess the prognosis of the course of coronary heart disease, taking into account the standard methods of examining the patient, as well as the parameters of assessing the psychological status that we studied: conducting TSH, assessing the clinical condition according to SHOCK, indicators of psychological status. In order to assess the individual risk stratification of the patient, we present a program that is a set of individual signs and collected in a so-called diagnostic table in order to identify the probability of an error-free prognosis in order to assess the severity and prognosis of the patient

Based on the results of the study and the calculator, an algorithm for determining the prognosis and management of patients with coronary heart disease was created. Targeted treatment of patients with coronary heart disease with identified violations of the psychological status and its combination with rehabilitation methods contribute to improving the course of the disease, the quality of life of patients and the prognosis of life.

Conclusions

In patients with depression, CHD is associated with a higher functional class of stress angina, a higher risk of an unfavorable outcome, a higher frequency of associated clinical conditions, cases of psychosocial stress, loss of professional ability to work, lack of social support, and low material income compared to patients without depression. In 32 patients with CHD with depression, who were prescribed antidepressants of the class of selective serotonin reuptake inhibitors, after 6 months. there was a significant decrease in the level of depression and reduction of depressive symptoms, an increase in socio-psychological adaptation, and an improvement in the quality of life compared to patients who did not receive antidepressant therapy, which indicates the pathogenetic and behavioral mechanisms of the relationship between coronary heart disease and depression.

References

1. Kodirova et al. Psychosocial features of patients with coronary heart disease // Biology and integrative medicine. 2021.-No. 4. pp.64-79

2. Kadirova Sh.S., Kamilova U.K., Alimov U.H. Evaluation of indicators of psychological status in patients with chronic heart failure// Cardiology of Uzbekistan. 2011. -No. 1-2. pp. 42-44

3. Kodirova Sh. S., Jabbarova M. B., Arashova G. A. Psychosomatic aspects of the course of chronic heart failure // Biologiya va tibbiiet muammolari, Samarkand -2019. -№4.2 (115). – Pp.57-60

4. Kodirova S. S. The study of emotional states and quality of life of patients with chronic heart failure // Biologiya va tibbiiet muammolari, Samarkand -2019. -№4.2 (115). - Pp. 232-236

5. Kodirova Sh.S., Djabbarova M.B., Arashova G.A., Hudoydodova S.G., Farmonova M.A., Elmuradova A.A. Features of the Clinical Course of Chronic Heart Insufficiency Depending on the Psychological Status of Patients// American Journal of Medicine and Medical Sciences. - 2020.- P.- 127-131

6. Kodirova Sh.S., Khamroeva Yu.S. Psychological characteristics of patients with coronary heart disease// Issues of science and education. Moscow. - 2018. - № 7 (19). - Pp. 264 - 265.

7. Kodirova Sh.S., Avezov D.K., Shaolimova Z.M., Rasulova Z.D. Assessment of the psychological state of patients with postinfarction cardiosclerosis complicated by heart failure // IV Congress of the Society of Specialists in heart failure "Heart failure 2009". -2009.- pp. 54-55.

8. Kadirova Sh.S., Kamilova U.K., Alimov U.H. Studying the relationship between indicators of psychological status and the course of the disease in patients with chronic heart failure // Collection of scientific papers of the IX International Forum of Cardiologists and therapists, March 25-27. International Journal of Heart and Vascular Diseases Moscow, Russia- 2020. - p. 120

9. Kodirova S.S. The study of emotional states and quality of life of patients with chronic heart failure // Problems of Biology and Medicine. - 2019. - № 4 - 2 (115) Pp. 232 – 237.

10. Kadirova Sh.S. Kamilova U.K. Avezov D.K. Pulatov O.Ya. The relationship of the psychological state with the progression of heart failure in patients with postinfarction cardiosclerosis // Materials of the Russian National Congress of Cardiologists Appendix 1 to the journal "Cardiovascular therapy and prevention" 2011.- No.10 - From 135

11. Kodirova Sh.S., Rasulova Z.D., Avezov D.K. The study of psychological status in patients with chronic heart failure // Materials of the Russian National Congress of Cardiologists. – Moscow. - 2010. – p. 139.

12. Kodirova S.S., Alimov U.H. Psychological status in patients with chronic heart failure // Abstracts of the Republican scientific and practical conference with international participation "The role of a general practitioner in reducing cardiovascular morbidity and mortality" //Cardiology of Uzbekistan No. 2.- 2011. P.- 135.

13. Kodirova Sh.S., Kamilova U.K., Alimov U.H. Indicators of psychological status in patients with chronic heart failure //Materials of the Russian National Congress of Cardiologists Appendix 1 to the journal "Cardiovascular therapy and prevention". - 2011. – p. 135.

14. Kadirova S.S., Kamilova U.K., Alimov U.H. Indicators of psychological status in patients with chronic heart failure // Abstracts of the International Congress "Cardiology at the Crossroads of Sciences". - Tyumen. - 2011. p.153

15. Kamilova U.K., Kadyrova Sh. Study of the psychological state in patients with chronic heart failure // Abstracts of the IV Eurasian Congress of Cardiologists October 10-11. Yerevan, Armenia, 2016.- pp.82-83.

16. Kadirova Sh.S., Kamilova U.K. The study of the psychological state in patients with postinfarction cardiosclerosis complicated by chronic heart failure // Materials of the forum. 4th International Educational Forum "Russian Days of the Heart" April 21-23, 2016, Russia. St. Petersburg Russian Journal of Cardiology, 2016.-pp.37-38

17. Kodirova Sh.S., Kamilova U.K., Nuritdinov N.A. Study of indicators of quality of life and prognosis in patients with chronic heart failure //Materials of the V International Educational Forum "Russian Days of the Heart". – Moscow, 2017. – p.85.

18. Kamilova U.K., Kadirova S.S. Assessment of psychological status in patients with chronic heart failure // Materials of the V International Educational Forum "Russian Days of the heart" March 30, April 01, 2017, Russia. St. Petersburg, 2017.- p.162

19. Kamilova U.K., Kadirova SH. The study psychological state of patients with chronic heart failure // Abstracts of the Heart Failure 2017 and the 4th World Congress on acute Heart Failure. Paris. France. 29 April-2 May 2017. European Journal of Heart Failure Supplements, 2017. - P.247

20. Kamilova U.K., Kadirova S.S. The relationship of indicators of psychological status and the course of the disease in patients with chronic heart failure // Materials of the Russian National Congress of Cardiologists "Cardiology 2020 — new challenges and new solutions", Russia, Kazan. -2020.- p.705

21. Kodirova Sh.S. Depression and chronic heart failure // Lambert Academic Publishing. - 2022.

RISK FACTORS FOR RECURRENT STROKE

Salomova N.
Bukhara State Medical Institute,
Department of Traditional Medicine and Occupational Diseases
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Abstract
Each of the pathological conditions is an independent risk factor, but their combined effect several times increases the risk of vascular injury. According to studies, in patients with metabolic syndrome, the volume of body weight increases with age, which is 42-43, 5% in patients over the age of 60 years.
Keywords: repeated strokes, risk, atherosclerosis, arterial hypertension.

The risk factor is a sign that it is pre-morbid and Independent, has a stable probable relationship and is important in predicting it. Risk factor-this is a predictive factor that gives the image of predicting the probability of a disease occurring in an individual and in the population as a whole. Timely detection and correction of risk factors is a promising direction in the Prevention of re – acute violations of cerebral circulation. According to who (2013), about 300 risk factors of stroke have been described, but factors that occur at a high frequency in different populations have a significant impact on the development of the pathological condition and reduce the incidence of their prevention. The combined effect of several risk factors increases the likelihood of developing stroke (according to who (2013), if there are 1-2 factors, the risk of stroke is 6%, 3 factors and more – 19%). Risk factors can be conditionally divided into non-changeable and changeable types. Age, gender, heredity, ethnicity and geography are factors that do not change. The factors that can be changed include diseases caused by harmful habits (tobacco smoking, drug abuse, alcohol consumption, obesity, anemia, depression, psychoemocial stress) and underlying diseases. The main diseases that cause recurrent stroke include arterial hypertension, heart disease, diabetes, atherosclerotic stenosis of the carotid arteries, dyslipidemia. Elderly patients usually have several risk factors, including metabolic disorders and camarbids. Arterial hypertension is one of the most dangerous factors that provoke the development of stroke. Arterial hypertension is characterized by metabolic changes, changes in the vascular wall, in particular, hemodynamic changes in the system and brain. This is a dangerous factor, which in turn leads not only to re-hemorrhagic, but also to the occurrence of re-ischemic stroke. The prevalence of arterial hypertension in the Russian Federation is 39,2% among men, among women-41,1%. 37,1% of men and 58,9% of women know about their diseases, of which (often not effective enough) 21.6% men and 46.7% women take therapeutic measures. According to the regional-population registry for 2013 year, in Russia, arterial hypertension is recorded in 89,2% of patients with acute disorders of blood circulation in the head brain.

Diastolic arterial blood pressure 105 mm.the sim.top. the risk of developing a stroke is equal to diastolic arterial blood pressure 76 mm.the sim.top. it is 10 times higher than when it is equal to. Thus, patients with primary cerebral stroke belong to a very high risk group, requiring the normalization of blood pressure and careful selection of antihypertensive drugs. However, a number of studies have shown that the proportion of patients with arterial hypertension with primary and recurrent stroke is approximately the same.

Heart diseases are the causative agent of cardioembolic ischemic stroke, and also one of the main causes of hemodynamic stroke. In angioneurological practice, the introduction of research methods such as Holter monitoring and transthoracic transesophagial echocardiography have made it possible to expand the list of heart diseases that cause head injuries . Nevertheless, the first place will be fibrillation of the limbs (hilpillating arrhythmia), which will cause the occurrence of a cardioembolic subspecies of ischemic stroke. Hilpillating arrhythmia increases the risk of developing stroke by 5 times and increases the mortality rate from this disease by 1.58 times. According to Fremingem studies, hilpillating arrhythmia was recorded in 1.5% of patients in the age group of 50-59 years, and in the age group of 80-89 years-23.5% of cases. Hilpillating arrhythmia is an independent risk factor leading to death among patients who underwent re-radiotherapy and Primary Stroke a month ago. At an older age, sinoatrial node fibrosis and fatty infiltration are one of the causes of an increase in the frequency of fibrillation.

In addition to a violation of the heart rhythm, the cause of cardiac embolism may be other heart diseases that contribute to the formation of a thrombus in its cavity. For patients, acute myocardial infarction, post-infarction cardiac aneurysm, cardiac valve prostheses are also relevant.

Hypercholesterolemia and violation of lipid metabolism (reduction of high-density lipoproteids, an increase in low-density lipoproteids, hypertriglyceridemia) is characterized by the development of atherosclerosis, along with arterial hypertension, which is the main cause of the development of cerebral stroke. The level of cholesterin does not directly depend on age, but increases with the development of metabolic disorders Komplex, characteristic of the elderly.

The risk of developing an atherotrombotic small type of ischemic stroke is inextricably linked with the degree of narrowing of the cavities of the cerebral arteries. If the development of sleep artery stenosis is more than 75%, the annual risk of a transitory ischemic attack is 13%, if the stroke is 3% and the carotid stenosis is 70-99%, then the risk of developing a stroke is 5-7% per year. With age, several cerebral trunk vessels occlusive atherosclerotic lesions, that is, the frequency of development of the atherogenesis process, increase.

Lesions of multiple trunk vessels in patients over the age of 65 years are three times more common than in single trunk vessel lesions.

Diabetes is an independent risk factor for developing ischemic stroke. Most often, diabetes is not diagnosed in elderly patients who have undergone a stroke, although it can occur in 50% of patients. Usually in such patients, the stroke is severe, a rough violation of carbohydrate metabolism is characterized by a high level of mortality and disability. According to clinical data, threeraydi 5-6 times more likely to ischemic stroke in patients with diabetes than blood transfusions. Acute violations of blood circulation in the head brain do not have a pronounced thrombotic property of a stroke in most patients with diabetes who have experienced an ischemic type, in its development, chronic cerebral vascular insufficiency leading to the slowing of sympathetic vasomotor nerve damage, oxidative processes and hypocapnia. The causes of the development of ischemic thrombotic stroke in patients with diabetes are significant atherosclerotic changes in the blood vessels of the brain, an increase in the viscosity of the blood and a violation of its coagulation properties (inhibition of the anti-coagulation system and the activity of coagulation systems). It was found that depression is directly related to the duration of diabetes in the body, the damage to the vascular system and the protective reactions of resistance. The pathology of the cerebral arteries (carotid and spinal artery) plays an important role in the development of cerebrovascular diseases, which are more associated with atherosclerosis in diabetes mellitus.

Data on the effect of alcohol on the risk of developing stroke of the head remain to this day as the cause of various disagreements. Excessive consumption of alcoholic beverages increases the risk of stroke due to arterial hypertension, hypercoagulant status, a decrease in cerebral blood flow, parasympathetic heart denervation and intermittent fibrillation, which leads to alcohol withdrawal.

In addition, regular consumption of alcohol leads to changes characteristic of the type of toxic encephalopathy. The problem of alcoholism in all patients, etiological causes, risk factors have not yet been adequately studied. At the same time, 5,4-10% of all patients admitted to a psychiatric hospital diagnosed with alcoholism are patients older than 60 years. Young patients often lie in the dispensary and do not receive treatment. Elderly alcoholism is a psychiatric disorder in the third place, noted in patients older than 65 years. The toxic effect of alcohol exacerbates alimentary insufficiency.

Smoking is also an important risk factor for ischemic strokes. However, the direct effect is not proven, most likely it has a multifaceted character. The effect of tobacco as a risk factor for stroke is primarily due to the acceleration of the process of atherosclerosis. Smoking leads to a decrease in the muscle layer of the arteries, which leads to the appearance of arterial hypertension and atherosclerosis. In addition, it was found that in people who smoke tobacco, there is a risk of developing diabetes of the second type.

Hypodynamia and abdominal obesity are an important risk factor for stroke. A number of studies have shown the presence of direct attachment: the more body weight, the higher the risk of developing ischemic stroke. Regular exercise reduces the risk of indirect stroke through a decrease in body weight, a decrease in blood pressure, a decrease in total cholesterol. However, no research has proven that weight loss can lead to a reduction in the risk of recurrent strokes.

References

1. Asrorov A.A., Aminjonova Ch.A. otsenka sostoyaniya kognitivnix narusheniy he pasientov perenesshix stroke V praktike semeynogo vracha / / Central Asian journal of medical and natural sciences. – 2021. - fuck you. 397-401.

2. To The Mainframe. What? Osobennosti ishemicheskogo insulta he vozrasta pojilogo ludey / / Medisinskie Novosti. – 2011. – №1. - Fuck you. 10–12.

3. Ayrapetov K.V., Akulenak E.A., Golovanova E.D. frequency vstrechaemosti, stratification Riska, techenie I medikamentoznoe lechenie arterialnoy hypertenzii he jentshin V postmenopausalnom period / / Sciences of Europen № 60.(2020).- Fuck you. 9-10.

4. Butikov V. What? Clinic-epidemiologicheskaya characteristic, faktori Riska I diagnostichеskaya informativnost nekotorix biochemicheskix pokazateley V Ostry period ischemicheskogo insulta: Authoref. the DIS. ... the village. the Med. Nauk / V. What? Butikov. - SPB., 2011. - Fuck you.142.

5. Bikova O. What?, Gozeva O.V. Faktori Riska I profilaktika ishemicheskogo insulta / / Vestn. The RoS. Voen. - med. eked. – 2013. – № 4 (44). - Fuck you. 46–48.

6. Varlou Ch.P., Dennis J., Van Gogh. Stroke. Prakticheskoe rukovodstvo dlya vedeniya bolnix. Per. s ANGL. - SPB., 2001. - Fuck you. 56–64.

7. Parfenov V.A., Verbiskaya S. V. Faktori Riska I profilaktika insulta PRI fibrillyasii predserdiy / / Neurology, neuropsychiatry, Psychosomatics. – 2014. – №. 3. - Fuck you. 55-60.

8. Vilensky B.S. Stroke-SPB: Med. inform. Agentstvo. 2005. - Fuck you.287.

9. Gafurov B.G., Rakhmanova Sh.P. Nekotorie clinic - pathogeneticheskie characteristic pervogo I povtornogo mozgovix insultov / / Mejdunarodniy neurologicheskiy magazine. – 2011. – №1(39). - Fuck you. 59.

10. Gafurov B.G., Roziev Sh.S., Heyzekav A. What? Clinicheskie osobennosti postinsultnix aphasia PRI narushenii mozgovogo krovoobratsheniya V dominantnom polusharii he Lis mujskogo I jenskogo Pola / / Neurology.2012. №3-4.- Fuck you.13-15.

11. Gafurov B.G. Izmeneniya EEG PRI nekotorix zabolevaniyax nervnoy system / / Klinicheskie lektsii po neurologii. 2016. - Fuck you. 107-110.

12. Gafurov B.G., Majidov N. Location, Majidova Yo. What? Methods of winter examination in tserebrovascular diseases. Private neurology.2012.- Fuck you.28-32.

13. Geraskina L.A. Arterialnaya hypertension I stroke: cardioneurologicheskie aspekti vtorichnoy profilaktiki / / Neurology, neuropsychiatry, Psychosomatics. – 2014. –№ 2. - Fuck you. 56–61.

14. Gureeva I.L., Gomzyakova N.A., Selkin M.D., Isaeva E.R., Golikov K.V. Neuropsychologicheskie izmeneniya he pasientov s ostrim narusheniem mozgovogo krovoobratsheniya / / Vestnik psychologii-2017-T.10, №4. S.28-36.

15. Dudanov I.P., Pigarevsky P.V., Korzhevsky D. The e. Atherosclerosis, saccharin diabetes I autonomic innervation organov serdechno–sosudistoy system // Med. eked. corn. – 2012. - What? 12, № 2. - Fuck you. 19–27.

16. Dudanov I.P., Vasilchenko N., Laptev K.V. Neurologicheskie ischodi he pasientov, perenesshix reconstructive operasii na sonnix artery, vipolnennix V Ostrom periode ischemicheskogo insulta/ / Biomedisinsky Journal. – 2011. - What?12, № 7. - Fuck you. 873–886.

17. Evzelman M., Makeeva M. The A. Techenie ostrogo ischemicheskogo insulta he bolnix s narusheniem karbodnogo obmena / / Jorn. the neural. I psychiatrist. I'm sorry. S.S. Korsakova. – 2012.– № 2. - Fuck you.64–66.

18. Epifanov V., Epifanov A. V. Medico-sosialnaya rehabilitation pasientov s razlichnoy pathologiey / / and Epifanov, AV Epifanov-m.: GEOTAR-media. – 2017. - Fuck you. 15-36.

19. Epifanov V., Epifanov A.V. Rehabilitation bolnix, perenesshix stroke / V. The A. Epifanov. - 2-e izd., ISPR. I DOP. - What?: Medpress-inform, 2013. - Fuck you. 248.

20. Salomova N. The G., Osobennosti techeniya I clinic-pathogeneticheskaya characteristic pervichnix I povtornix insultov / 2021/10/30 Journal Central Asian journal of medical and natural sciences. 249-253

21. Salomova N.Q. Clinical and pathogenetic features of recurrent stroke/ New Day in the journal Tipptyot 2022/2/40 stranisi 662-668

PEDAGOGICAL SCIENCES

CHARACTERİSTİCS OF THE COMPONENTS OF CONTENT STANDARDS

Ibrahimov F.,
professor
Shaki Branch of Azerbaijan State Pedagogical University,
Azerbaijan, Shaki
Abdullayeva G.,
associate professor
Shaki Branch of Azerbaijan State Pedagogical University,
Azerbaijan, Shaki
Kerimova M.
Shaki Branch of Azerbaijan State Pedagogical University,
Azerbaijan, Shaki
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Abstract

The article argues the relevance of the topic, emphasizes that knowledge, skills and habits are the main components of education, comments on the schematic description of the relationship between these components in scientific sources, clarifies the dialectical unity, development and functions of knowledge, skills and habits. It has been shown that consciousness, which is "impersonal", free from subjective factors and relatively independent of material activity, is really expressed in the form of knowledge.

The work provides an interpretation of the knowledge included in the training material in groups, focuses on the hierarchical arrangement of cognitive skills, looks at different classifications of intellectual skills, reveals the peculiarities of their formation in students, introduces effective ways of learning. In general, it is stated that when students have a clear idea of psychological processes, they do not shy away from difficulties when they believe in the possibilities of their thinking, they think and try to solve the problem, even if they fail.

Keywords: content standard, component, intellectual skills, factorological, procedural, conceptual, metacognitive knowledge.

Relevance of the research topic

From the analysis of scientific sources and materials collected on the activities of teachers in real pedagogical processes, it is clear that there are different approaches to making students' learning activities adequate for scientific activities, but the results are not successful. There are many reasons for this shortcoming, including insufficient disclosure of the scientific-theoretical, pedagogical and technological aspects of knowledge, skills, habits, developmental dialectics and functions as components of the unit, which are components of content standards. Despite the above, we claim the relevance of the study of the subject.

Interpretation of research materials

First of all, the training serves to equip students with the basics of science, to acquire knowledge, skills and habits for their mental and practical activities. Knowledge, skills and habits are key components of education. In particular, knowledge is a key, leading component of learning. It is well known that it reflects the generalized experience of mankind, the reflection of facts, rules and results, laws, theories that belong to science in various spheres of life. [1; 111]

Skills and habits acquired in the teaching process are also necessary components of education. For example, reading, writing, arithmetic, labor, solving mental and practical problems, etc.

We would like to dwell on the concept of skills and habits, as there have been conflicting opinions in the literature recently about their interpretation. Some scientific sources emphasize that in pedagogy, "skill" means a "Habit" is a kind of automation, the correct, error-free execution of a skill acquired as a result of many repetitions and efforts. [5;259]. It follows that "skill" is formed on the basis of knowledge, and "habit" is formed on the basis of "skill". In our opinion, the following interpretation, which has a place in Russian psychological thought, is interesting in terms of understanding these concepts at a more acceptable level: Training is a type of activity, the direct purpose of which is to master certain information, actions, forms of behavior. In other words, the active process of directing human activity and behavior to assimilate the social experience of mankind is called learning. Such specific activities of the subject with the purpose of learning include: 1) the acquisition of information about the necessary, important properties of the world for the successful organization of this or that type of ideal and practical activity (the product of this process is knowledge); 2) mastering the ways and operations that make up that activity (habits are the product of this process); 3) to master the rules of using the mentioned information to correctly select and control the ways and operations appropriate to the conditions of the issue and the forthcoming purpose (the end product of this process is skills). [4;192]

Recently, there has been an opinion that "habit" is not based on skills, but "habit" is a component of skills. Some didactics and psychologists agree. For example, V.A. Onishchuk, referring to the theory put forward by P.Y. Galper in psychology, writes: Ability - the ability to perform complex, complex movements. Habits are formed on the basis of knowing the rules of execution

of actions ... Skill is a creative activity on its basis. [12; 21]

It is difficult to agree with such an interpretation of the issue. Although this interpretation is supported by many psychologists, it confuses practitioners, especially teachers. There is no reason to deny that in the pedagogical process, the ability is formed at one level, and the third level rises at a more complex level. How to talk about automated actions (habits), even if the student knows how to do it, he is not able to solve it in practice. Are there few cases in the learning process when a student who knows how to solve a problem theoretically is not able to solve it in practice? If the habit is based on practice, what can a student work on without being able to do it? V.A.Onishchuk does not agree with the scheme "Knowledge - simple skills, habits - complex skills." [5; 259]

In our opinion, this scheme has a certain meaning. Simple skills are formed on the basis of knowledge, give rise to habits, and on the basis of the latter, complex, high-level skills are formed. For example, on the basis of elementary writing skills, the habit of writing competently, the habit of literate speech is formed, on the basis of which the student is able to express his opinion competently, write essays, official letters, articles, etc. Gains complex skills such as writing. But this is not the end of the matter.

Undoubtedly, complex skills also contain elements of creative movements, which gradually rise to a higher level, rise to the level of creative activity, and finally, it also becomes a kind of habit. In our schools, are there few educated, editing and oral students who write meaningful poems, describe social and natural events in a creative and artistic way, and appear in the youth press with their own articles? Similar situations occur in the field of engineering, music, fine and applied arts, as well as in the teaching of mathematics, physics and chemistry. All this shows that the relationship between skill and habit is more appropriate to express in the following scheme, more scientifically sound: *knowledge - simple skills - habits - complex skills - creative actions.* [5; 260-261]

All this also shows that when talking about skills and habits as a component of the educational function of training, it is not enough to focus only on the simple teaching skills and habits acquired. It should also cover the application of theoretical information in practice, the skills and habits acquired in the system of mental and practical activities necessary for a creative person. It should not be forgotten that it is also a matter of instilling creative skills in students. Among the various forms of consciousness that make up the human spiritual world, knowledge is the most foreign to him. In particular, knowledge that is not directly related to the person himself, his personal life and destiny! In fact, knowledge is not a reflection of a person's own life, but of the objective reality that surrounds him. The form of consciousness, which reflects a person's personal life and is a reflection of his own events, is already expressed in another way - it is considered a memory. Memories can be "bitter" or "sweet", "pale" or "colorful", and can repeat a person's feelings over time. Knowledge, on the other hand, is lifeless and neutral, not directly related to human emotions, and is alien to man in this sense. [9; 258]

In real spiritual life, neither emotional images are completely isolated from concepts, nor concepts from emotional images. Emotion and rationality are always united and complement each other. However, both feelings and imaginations, as well as concepts and judgments, have a certain relative independence, and it is through this independence that it is possible to distinguish them and evaluate them as different stages of cognition. [9; 260]

It should be noted that there is no need to remember each of the recurring events in all their specificity and detail, and this is not possible. Because a large part of human life is made up of recurring events. Therefore, details are discarded, the emotional image is freed from inconspicuous features, the main recurring features are generalized - concepts are formed and the event is interpreted by a system of concepts.

It is possible to think only with concepts, it is impossible to be influenced by them. Assimilation of ordinary life events, which are not related to a person's specialization, professional activity, arises from daily necessities and are common to all people, corresponds to a form of cognition called "ordinary consciousness". Along with forms of professional cognition, such as scientific cognition, artistic cognition, and philosophical thinking, ordinary consciousness is also one of the important ways of perceiving reality. But there is an important qualitative difference. Ordinary consciousness is not a field of professional cognition and forms the basis of cognitive activity of all people. The product of ordinary consciousness is ordinary knowledge. As the scope of human activity expands, this knowledge goes beyond "ordinary knowledge." Relatively different kinds of knowledge emerge, which form a kind of core of human activity. This knowledge no longer serves that person directly, but through society, as a member of society. Knowledge that is already alien to man becomes even more alien because it goes beyond his personal sphere of life. [9; 260]

In our opinion, it would be more accurate to clarify the nature of knowledge by looking at when its history began. In the process of interacting with nature, in order to satisfy his necessary material needs, man first begins to perceive nature as a continuation of himself, and then as a different, opposite side to himself. As long as man cannot separate himself from nature, his perceptions of nature are limited to the senses and the senses. This feeling, which is a historically primitive reflection of the human-nature relationship, although the landscapes have a certain dynamics, does not adequately reflect the reality, as it were, in its objective content. The transition to social-natural relations takes place in parallel with the transition from syncretic thinking to logical thinking. Society does not encompass the biological existence of human beings and does not act as a part of nature, but as an independent entity that exists in parallel with it and, therefore, can be compared with it when necessary. Therefore, as a member of society, as a social being, as an individual, human consciousness reflects nature outside of man, in a "dehumanized" state,

as it really is (meaning only scientific truth). The history of knowledge also begins from this time.

Scientific sources rightly state that consciousness, which is "impersonal", free from subjective factors and relatively independent of material activity, is really expressed in the form of knowledge. Knowledge comes from memory, impressions, emotional images, unconscious acts of consciousness, and so on. in contrast, it emerges as a result of logical thinking and is expressed in terms and concepts. The history of knowledge coincides not with the history of any form of consciousness, but with the history of logical thinking. [9;266]

There are different classifications of knowledge in the relevant literature. Thus, scientific, historical, abstract, concrete, analytical, empirical, practical, intellectual, etc. distinguish types of knowledge. [7; 111]

The knowledge included in the training material can be divided into three groups: generalized knowledge, generalized methods of action, specific knowledge. The first group includes concepts, laws, principles, rules, etc. includes. Knowledge belonging to this group can be acquired in the following ways: a) understanding, etc. memorize without understanding the content and essence, b) ready result, learning in the form of generalization, or rather, understanding, etc. disclosure of the content by the teacher or with the help of the textbook: c) independent access.

The second group includes knowledge of the nature of objects and events in the real world, as well as the methods and techniques used to understand the regularities between the relevant concepts, laws and rules. The knowledge included in this group should be didactically appropriate in each case. Thus, one concept, rule, law can be mastered through the solution of the problem of learning, another explained - through reproduction.

The third group includes facts, terms, dates, names, quantities, events, and so on. includes. The knowledge belonging to this group is not generalizing, it just requires memorization. The third group of knowledge, as a rule, is not acquired through problem-based learning. [6; 447-454]

This knowledge can be interpreted as follows: 1) Declarative knowledge - knowledge of individual information: knowledge of terminology; know the specific element and details. 2) Conceptual knowledge - consists of an information system: knowledge of classifications and concepts; know the principles and generalizations; know the theory, models and structures. 3) Procedural knowledge - knowledge of methods and their use: knowledge of specific skills and algorithms; know concrete methods and techniques; know the criteria for determining when an appropriate method will be used.

The knowledge component can include "metocognitive knowledge". Metacognitive knowledge - knowledge of thinking processes and information, their effective use: strategic knowledge; knowledge of cognitive tasks, including relevant contextual and conditional knowledge; self-awareness. [8; 37-42]

Habit is a more objective phenomenon than a phenomenon of consciousness, or rather, an objectified, differentiated consciousness. Just as tools-techniques, machines-techniques are in fact the distinction of scientific-practical knowledge, the designer's imagination in things beyond man, as well as habit-technique is the distinction of practical knowledge in man's own hands. [9; 278].

Habit is a more objective phenomenon than a phenomenon of consciousness, or rather, an objectified, differentiated consciousness. Just as tools-techniques, machines-techniques are in fact the distinction of scientific-practical knowledge, the designer's imagination in things beyond man, as well as habit-technique is the distinction of practical knowledge in man's own hands. Indeed, at each subsequent stage of development of technology, machines appear that replace the previous function of the hand, "mastering" the practical skills of man. As the structure of a complex machine includes various components that replace one or another human function, it becomes more automated. Man himself, on the other hand, is becoming increasingly free from the features of being a living machine gun, and is more and more acting as a conscious being, engaged in creative work. If primitive labor is always based only on the activation of the same habit, and there is no obvious component of consciousness, the more complex forms of labor imply the multiplicity of such habits through open consciousness, as if on the basis of a certain program. Such complex labor cannot be replaced by a simpler machine, there is a need for an "executor" provided with "artificial intelligence". It should be noted here that it is impossible to create a single, universal technical carrier of artificial intelligence. Only special machines that perform individual intellectual functions can be developed. That is, when each type of cybernetic machine is developed, it is adapted to a pre-conceived direction of activity and can only "work in that field of research". Of course, cars have a certain relative independence and the opportunity to vote. Due to a change in circumstances and position, one program is replaced by another. In some respects, artificial intelligence has a number of advantages over natural intelligence. A number of mental operations, which are impossible for natural intelligence, are easily performed by machines. We must not forget that natural intelligence is universal, that is, the performance of completely different quality intellectual operations is in principle possible for the same human brain. (see for more information: [9; 257-288]

The hierarchical arrangement of cognitive abilities can be interpreted as follows, and the analysis of the research materials obtained shows that it is useful from the point of view of its application in practice: Comprehension level - includes three categories of learning objectives: translation, translation (for example, translating an assignment from a practical language into a mathematical language); interpretation (for example, the ability to explain a mathematical solution in practical language); extrapolation (attribution of knowledge acquired in a certain field to another field, similar situations). The level of application implies the formation of students' ability to apply knowledge in practical situations. It can also be described in the following sublevels: application of concepts; application of methods; application of algorithms. Level of analysis - implies

educational goals in the following categories: analysis of elements (separation or fragmentation); analysis of relations (relationships) (creation, proof of established links, dependencies between elements); analysis of principles (systematization of elements). Level of synthesis - the purpose of education, which forms the ability to determine the relationship between the individual elements produced in the process of analysis and to draw general conclusions from them: synthesis of ideas (for example, the search for solutions to a problem); synthesis of methods (preparation of a plan for solving the problem, determining the sequence of operations); synthesis of structures (formation of functions, sets, groups). Assessment level - involves the development of diagnostic skills, critical thinking and has the following categories: assessment based on internal judgment and knowledge (with evidence, proof, logic); assessment based on external criteria (standards, norms and rules).

It should also be noted that content standards are divided into cognitive, emotional and psychomotor skills in terms of performance. These skills are hierarchically arranged in taxonomies according to their level of development. It should be noted that there are verbs that express all stages of taxonomy (cognitive, emotional, psychomotor), which are considered suitable for education. Verbs are a very important indicator of skill expression. The verb reflects what stage of the taxonomy the skill belongs to.

There are different nomenclatures and classifications of skills that have a place in scientific sources. For example, let's take a step back and say that we think the learning process that includes STEAM is more creative and fun. On a logical basis, it is to be hoped that learners who are exposed to the effects of a cognitive or technological process that includes this subsystem will be able to innovate in the future. In this natural process, they use a variety of fields: mathematics and other exact sciences, engineering, design, digital devices and technology. STEAM is a relatively independent or dominant positional system with a universal practical orientation that allows students to perform any complex task, in which learners put their knowledge into practice. The cognitive or technological process that includes this subsystem is useful and necessary for every modern school. STEAM's special place in the training substrate allows students to learn creatively using 21st century skills such as problem solving. "The 4C skills of the 21st century are collaboration, creativity, critical thinking and communication, which are the perfect classification of skills, and they are an important component of a rapidly changing workforce and human success in society." (For more information, see: [https://525.az/?name=xeber&news_id=132946]).

Intellectual skills have a special place among the skills that schoolchildren must become subjects. Let's look at the issue in a broader area, and when the time comes, let's choose a point of view for the student in terms of activity and communication. Suppose that the mental operations (analysis, composition, etc.) are well formed, but he does not know the rules of working on the book, or a good question comes to mind, but he has difficulty in formulating it. There are many such facts in school practice. Their analysis allows us to draw an important conclusion: the student must have the necessary intellectual skills to realize their intellectual potential, to purposefully regulate cognitive activity, it should be noted that Professor A.A.Alizadeh emphasizes that in the psychological and pedagogical literature, these skills are sometimes described in a broader sense as mental labor skills or teaching skills. In our opinion, it is not bad to remember the wise words of R. Descartes: "It is not enough to have a good mind, the main thing is to apply it well." [2; 59-60]

Various studies clearly show that students who lag behind in learning are characterized by extremely low levels of intellectual ability. [11; 110]. The main function of intellectual abilities is related to the externalization of intellectual operations: the content of cognitive activity is conditioned by intellectual operations, and their realization in the process of activity depends directly on the level of intellectual abilities. [11; 300]

Intellectual skills are numerous. Their different classifications are known in psychology and pedagogy. Given the research conducted in this area, especially the classification of N.A. Menchinskaya, intellectual abilities can be divided into the following groups: general intellectual skills (planning, book work, self-control); intellectual skills necessary for the organization of mental activity (to distinguish the main idea in the text, to divide the text into parts according to the meaning, to compare events, etc.); special intellectual skills (they reflect the characteristics of a subject, for example, cartographic or graphic skills). [11; 37-39]

İntellektual bacarıqların daha bir təsnifatı da maraqlıdır. I.Untun's classification distinguishes the following types: skills related to the perception of educational material (reading, observation, listening skills); ability to make logical operations with teaching material (assignment of important, comparison, ability to draw conclusions, etc.); creative skills (ability to build a composition, etc.). [2: 60]

Based on our experience, we can emphasize that intellectual skills are one of the fundamental issues in the learning process. Their formation in students has its own peculiarities. During the early school years, new mental qualities appear: an internal plan of activity is formed, mental processes gradually become independent, reflection is formed. On this basis, there are favorable conditions for the formation of general intellectual skills in the classroom, especially planning and self-monitoring skills. As the student's social experience expands, he or she gradually acquires the skills to work on the book, mastering the technology of reading teaching materials, speaking the content, and systematizing. The analysis of scientific sources leads to the conclusion that starting from V-VI, especially VII-VIII grades, they should pay consistent attention to the formation of general intellectual skills. In the context of the scientific and technological revolution, library and bibliographic skills play an important role in the effective use of scientific, scientific and popular literature, encyclopedias, explanatory dictionaries and periodicals, and in more detailed mastering of teaching materials. The analysis of scientific sources leads to the conclusion that starting from V-VI, especially VII-VIII

grades, they should pay consistent attention to the formation of general intellectual skills. In the context of the scientific and technological revolution, library and bibliographic skills play an important role in the effective use of scientific, scientific and popular literature, encyclopedias, explanatory dictionaries and periodicals, and in more detailed mastering of teaching materials.

The importance of general intellectual skills is clear. Advanced teachers focus on instilling in their students the wisdom of their experiences. While this in itself is gratifying, one aspect is undoubtedly unfortunate: the lack of study of general intellectual skills, on the one hand, classes and, on the other hand, the system and content of individual subjects, has a negative impact on students' scientific and methodological development. shows the effect. The intellectual skills necessary for the organization of mental activity, it seems, need to be distinguished. This issue, which is of great importance in itself, began to be understood in the same way in the 19th century. Prominent psychologists and educators of the time advised children to "teach reading", and made it one of the main tasks of the school to develop in students the skills necessary for the effective organization of their mental activities.

In the twentieth century, the importance of this issue has not diminished, but increased. Psychological (and pedagogical) research has identified experimental facts that explain the characteristics of the conditions for the formation of intellectual abilities. The call to "teach students to read" was gradually concretized on their basis: in the "Psychology" textbooks of the 30s and 40s of the last century, especially in the 50s and 60s, students-future teachers were already acquainted with the following effective ways of learning: 1. Setting goals; 2. Understanding; 3. Independent work; 4. Imagination; 5. Do not tell a story "in your own words"; 6. Importance of repetitions; 7. Division of repetitions; 8. Memory during learning; 9. Complete and partial learning; 10. When should we study?

All of these rules reflected the concept of traditional learning (read: memory): their main line was the strength and accuracy of memory. Although the rules referred to "understanding" and "imagining", these two rules did not change their essence and were interpreted only in the traditional way - in terms of memory. In the textbook "Psychology" (Baku, 1968) the essence of the methods of "effective learning of teaching material" was explained as follows: “In order to remember the perceived material, for example, the training material, as sufficiently strong, accurate and long-lasting, it is necessary to repeat it enough, in other words, to learn it. The strength and accuracy of memorization depend on the organization of learning”.

As Professor A.A. Alizadeh emphasized, in the conditions of the scientific and technological revolution, these issues again manifested themselves in all their severity. The results of the unlimited abundance of information were obvious: the program material was increasing day by day. The volume of textbooks was rapidly expanding. New diseases of the century, such as information neurosis, were spreading to the world of children. It was difficult to read on its own. The problem of "teaching children to read" again appeared in all its severity, but this problem was analyzed in a broader context - in the context of mental culture, mental culture, culture of thinking. In the 70s of the last century, new paradigms were already forming in the psychology of learning. In this case, the rules we have considered have already lost their former value. That is why the new "Psychology" textbooks of the 70's rejected "Effective Ways of Learning". These textbooks described the intellectual skills necessary for the organization of mental activity in a new way: they were expressed in the sense of purposeful perception, rational mastery, effective thinking. In this sense, two aspects attracted more attention: on the one hand, effective rules of learning are no longer limited to the concept of one-sided memory, issues are considered in the direction of mastery, on the other hand, the functions of perception and thinking are explained, they are "purposeful", "rational", "effective" were analyzed by dimensions. [2; 62-63]

How can you teach these rules to your students? The generalizations on the materials obtained from the analysis of scientific sources lead to the conclusion that in modern times there are two clear directions in the field of formation of intellectual abilities.

The first direction involves the formation of intellectual skills in students through special tasks. These tasks are based on the principle of modeling the structure of various intellectual abilities. As students complete them, they will be able to determine the purpose of their work, systematize teaching materials in this regard, independently collect material, write essays, and so on. acquire intellectual skills such as From the point of view of the principle of developmental training, this way is considered effective. However, in order to use it purposefully, the system and content of intellectual skills in classes and subjects must be thoroughly developed.

The second direction. In the process of developing intellectual skills with specific tasks, the teacher inevitably encounters a fundamental question: To what extent do students know the characteristics of their cognitive activity? The question itself is extremely relevant. Although we consider this issue in the direction of the formation of intellectual abilities, it should be noted that it has a broader meaning. This applies equally to both thought processes and intellectual abilities. Self-awareness has always been a topical issue in world philosophy, psychology and pedagogy. They approached the self-perception of a person from the point of view of personality, sought its roots in the formation of a person's perception of his "I", and did not appreciate the understanding of the features of his mental world, world of thought, cognitive processes.

"Logic Games", the author of L. Carroll's famous tale "Alice in Wonderland", which introduced children to the original graphic solution of syllogisms and syllables, was published in the 80s of the XIX century. In the twentieth century, various authors continued this tradition. Valuable books such as D. Poyyan's "How to solve the problem" (M., 1957), A.A. Ivy's "The art of right thinking" (M., 1990) were published. Experience

has clearly shown that students who study relevant books have a better understanding of themselves and are more interested in the characteristics of multifaceted cognitive activities. Lakin məktəb təcrübəsində idrak fəaliyyətinin psixologiyası öyrənilməmiş, şagirdlərin yaddaşının və ya təfəkkürünün xüsusiyyətləri ilə maraqlansalar da, onların maraqları öz-özünə təmin edilmir və zəifləyirdi. [2; 63]

In contemporary American psychology, this issue is given great importance and is studied as a meta-cognitive system. It has been established that as children develop, they develop certain ideas about cognitive processes. They begin to regulate their mental activity. How do these qualities manifest themselves in students and how can they be developed systematically? Flaywell studied and described in detail some of the functions of the meta-concept. Among them are: problem statement and identification of possible solutions; know what cognitive process is necessary to solve the task; activation of cognitive rules and methods; belief in the possibilities of thinking; attempt to solve tasks more efficiently. [2; 64]

These functions are interrelated. The first function is due to the fact that children develop ideas about the purpose of the activity. As they get older, they learn to apply certain ways to different situations. Gradually, students develop ideas about cognitive processes. They understand that in order to memorize the material, the teacher needs to listen carefully and remember it. When a student has a clear idea of these psychological processes, he activates attention in one case and memory in another, depending on the nature of the task. In the process, his skills are gradually increasing: he is looking for new ways to solve the problem. When a student believes in the possibilities of his thinking, he does not shy away from difficulties, even if he fails, he thinks and tries to solve the problem. In this process, his attitude to himself changes. He solves the problem in a hurry, not in a hurry, but in an efficient way.

According to P. Massen, J. Kencer, J. Kogan and A. Houston, these functions develop to some extent in all children. However, their upbringing has a significant impact on their level of development. Students with well-organized meta-cognitive functions solve teaching (cognitive) tasks in a planned and purposeful way. These features are a prerequisite for successful training. They need to be developed by all means. The urgency of the issue must be understood in all scientific and methodological terms, and systematic work must be done at school in this area. [2; 65]

Scientific novelty of the research

Various classifications of intellectual knowledge, skills and habits included in the content standards of the learning process adequate to the emerging educational space are given, peculiarities of their formation in students are revealed, effective ways of learning are presented.

Theoretical significance of the research

Different classifications of components of content standards - intellectual knowledge, skills and habits, which are not sufficiently explained (manifested as a "theoretical gap") in the interpretations of the learning process adequate to the emerging educational space, are given specific features of their formation in students, considerations of effective ways of learning system-structure ”on the basis of a dialectical approach.

Practical significance of the research

The novelty of the research will have a positive impact on the formation of intellectual knowledge, skills and habits in students, which are the main components of content standards in the practical activities of educators, the elimination of shortcomings.

The result

1) Knowledge, skills and habits are among the components of the content standards of education adequate to the emerging educational space;

2) There are different classifications of intellectual knowledge, skills and habits, which are the main components of content standards, there are peculiarities of their formation in students, effective ways of learning;

3) Məzmun standartlarının əsas komponentləri olan intellektual bilik, bacarıq və vərdişlərin müxtəlif təsnifatlarına, onların şagirdlərdə formalaşmasının xüsusiyyətlərinə, təlimin səmərəli yollarına diqqət yetirməklə təlimin təşkili və idarə edilməsində bir sıra çatışmazlıqları aradan qaldırmaq olar.

References

1. Abbasov A.N., Mammadzade R.R., Mammadli l.A. Pedagogy: Muntahabat (textbook for universities). Baku, “Mutarjim”, 2021, p.111-115.

2. Alizade A.A. Psychological problems of modern Azerbaijani school. Baku, “Pedagogy”, 2004, p.59-65.

3. Alizade A.A., Alizade H.A., Alizade S.H. Psychopedagogy. Baku, “Ecoprint”, 2019, p.9.

4. General psychology. Textbook for the characteristics of pedagogical institutes. (Edited by Professor A.V.Petrovsky). Baku, “Maarif”, 1982, p.191-193.

5. Mehdizade M.M. Ways of development of educational process in secondary schools. Baku, “Maarif”, 1982, p.259-261.

6. Ibrahimov F.N., Huseynzade R.L. Pedagogy (textbook).Is. Baku, “Mutarjim”, 2014, p.447-454.

7. Ibrahimov F.N. Appendices on the basics of optimal ratios of algorithmic and heuristic activity in training. Baku, “Mutarjim”, 2021, p.111.

8. Ibrahimov F.N. Teaching methods based on the curriculum model of mathematics in secondary schools (textbook). Baku, “Mutarjim”, 2020, p.37-42.

9. Khalilov S.S. Education, training, upbringing. Baku, “Azerbaijan University”, 2005, p.257-288.

10. Bogoyavlinsky D.N., Menchinskaya N.A. Psychology of learning at school. Moscow, Publishing House of APN RSFSR, 1960, pp. 110, 300.

11. Menchinskaya N.A. Teaching problems. Moscow, Publishing House of APN RSFSR, 1989, p. 37-39.

12. Onischuk V.A. Types, structure and methodology of the lesson at school. Kyiv, 1976, p. 21.

13. Pedagogy of the school. Edited by Corr. APN USSR G.I. Schukina, 1977, p.259.

PHILOLOGICAL SCIENCES

СЛОВОСОЧЕТАНИЯ В ГРАММАТИКЕ РУССКОГО ЯЗЫКА

Уссейну Т.
к.ф.н.
Заведующий кафедрой русского и славнских языках
Дакарский университет имени Шейха Анты Диоп, Сенегал

WORD COMBINATION IN RUSSIAN GRAMMAR

Ousseynou T.
PhD
Chief of the department of Slavic Languages and Civilizations
Cheikh Anta Diop University of Dakar, Senegal
DOI: 10.5281/zenodo.6825869

Аннотация

Словосочетания и граммматика русского языка тесно связаны так как словосочетания играют важную роль в строении предложения. Мы определили семантику словосочетания и ясно оъясняли их синтаксическую роль.

После того как анализировали роль и значение словосочетания в грамматике русского языка, мы определели их формирование и характеристики.

Abstract

Words combination is tightly part of Russian grammar for they play the most important role in sentence building. In this paper, the meaning, definition and syntaxical role of word combination is broadly given.

After having analyzed the formation and characteristics of word combination, we sorted out their meaning and the important role they play in Russian grammar.

Ключевые слова: грамматика, русский язык, словосочетание, роль, предложение.

Keywords: grammar russian language, word combination, role, sentence.

Введение

Словосочетание - это синтаксическая конструкция, образующаяся на основе подчинительных связей: согласования, управления и примыкания. В словосочетание полностью переносятся все те отношения, те общие и частные, более конкретные значения, которые возникают при присловной подчинительной связи: эти отношения представляют собой значения словосочетаний.

Чтбоы эффективно понимать роль словосочетания в предложении следует анализировать их формирование и характеристики. Это сильно помогает нам выяснить значение и роль словосочетания в предложении.

1. Формирование словосочетаний

Формирование словосочетаний является результатом распространения различных знаменательных частей речи (глаголов, существительных, прилагательных и наречий). Например:

(1) читать книгу;
(2) ездам верхом;
(3) полный злобы;
(4) светло от солнца.

Эти словосочетания характеризуются односторонней связью и называются подчительными. В них четко выделяются главные и зависимые компоненты: в (1) главное слово – *читать*, во (2) главное слово – *ездо*, в (3) главное слово – *полный,* в (4) главное слово –*светло.*

Соответственно зависимыми будут: *книгу, верхом, злобы* и *от солнца*.

В зависимости от характера главного компонента выделяются словосочетания *глагольные*, *субстантивные*, (главное слово - существительное), *абъективные* (главное слово - прилагательное) и *наречные*, или адвериальные.

В элементарном словосочетании, состоящем из двух компонентов, выражается определенное синтаксическое отношение, связанное с семантической падежа. Так, в русском языке в глагольных словосочетаниях с творительным падежом могут быть переданы следующие синтаксические отношения: 1. Резать ножом - орудийное; 2. Гордиться сыном – эмоционального объекта; 3. Выть волком - сравнительное; 4. Ехать лесом – локальное (место) ; 5. Ехать ночью – временное и другие.

В зависимости от способа связи компонетов словосочетания выделяют сочинительные (равноправные), подчинительные (субординативные) и предикативные (взаимонаправленные) словосочетания.

К с*очинительным* словосочетания относятся те, которые связаны сочинительными союзами и перечислительной интонаией.

Например: *вчера*, *сегодня*, *завтра*; *мать и дочь*; *не то дождь*, *не то снег*; *вооружен, но не опасен; институты или университеты.* В этих словосочетаниях ни один из компонентов не зависит о другого.

2. Характеристики совосочетания

Словосочетание может быть свободным и несвободным. В свободном словосочетании полностью сохраняются самостоятельные лексические значения входящих в него знаменательных слов: *читать книгу*, *жить в городе*, *велеть сыну учиться*, *выполнение заказов*, *идти медленно*, *удачливый в делах*. В несвободных словосочетаниях лексическая самостоятельность одного из компонентов ослаблена или утрачена, и такое словосочетание в целом по характеру своего значения приближается к отдельному слову: *дать пощечину*, *железная дорога*, *белый гриб*. Те несвободные словосочетания, в которых отсутствуют современные живые синтаксические связи и отношения, предметом грамматики не являются (например, *шутка сказать*; *не разлей вода* (о неразлучной дружбе, друзьях), разг.). Не являются также предметом грамматики несвободные словосочетания с утраченным, стершимся лексическим значением одного из компонентов (*бить баклуши*, *точить лясы*, *балясы*) или, тем более, обоих компонентов (*ничтоже сумняшеся*, шутл.; *с бухты-барахты*. разг.).

Свободные словосочетания могут быть лексически не ограниченными и лексически ограниченными. Первые образуются на основе связей, не ограниченных лексико-семантически, вторые - на основе связей, лексико-семантически ограниченных или закрытых. Степень лексико-семантической ограниченности может быть очень различна; в большинстве случаев при образовании словосочетаний действуют те или другие ограничения, идущие от лексических значений соединяющихся слов; такие ограничения отмечены при описании подчинительных связей слов, а также при описании значений форм слов.

3. Значение словосочетания

Как уже сказано, словосочетание имеет свое значение: это - то отношение, которое возникает между знаменательными словами, соединившимися на основе того или другого вида подчинительной связи. Значение словосочетания лежит в области грамматической семантики. Характер его двойственный. Для одних словосочетаний значение целиком определяется грамматическими значениями соединившихся слон и характером связи; таковы, например, определительные отношения при согласовании; для других словосочетаний - и таких большинство - самый характер связи предопределяется фактором не только грамматическим, но и лексико-семантическим. Например, в словосочетании, возникающем на основе соединения глагола с вин. п. беспредложным, значения объектное (*читать книгу*) и обстоятельственное (*читать час*) разграничиваются на основе лексической семантики зависимого слова, обусловливающей собою разный характер связи: управление в первом случае и падежное примыкание - во втором.

В зависимости от той реальной ситуации,которую словосочетание называет в данном, конкретном предложении, одно и то же словосочетание может обозначать разные виеязыковыс отношения: *мой класс*: (класс, в котором я учусь), (класс, в котором я учу), (класс, в котором я работаю вожатым), (класс, для которого я организую экскурсию) и мн. др.; *стол отца*: (стол, который принадлежит отцу), (стол, за которым работает отец), (стол, который сделал отец) и мн. др. Такие ситуативные значения словосочетаний в "Грамматике" не рассматриваются.

Существуют словосочетания, совмещающие в себе два значения (два разных отношения). Таковы словосочетания типа *чтение Маяковского*, *посещение родственников*, *приглашение юриста*, *открытие мастера*. Вне языкового окружения (контекста) здесь можно констатировать только значение отношения действия и предмета, с которым это действие связано. Значение же более определенное, а именно - одно из двух: определительно-субъектное или объектное ((читает Маяковский) или (читают Маяковского), (посетили родственники) или (посетили родственников), (пригласил юрист) или (пригласили юриста), (открыл мастер) или (открыт мастер)) выявляется у таких словосочетаний в условиях контекста и проверяется показанными здесь соотношениями.

Заключение

Функционируя в предложении, словосочетания занимают в нем разные позиции; при этом они могут претерпевать существенные формальные и семантические изменения. Очевидно что, словосочетания играют самую важную роль в процессе строения предложение. Все такие явления помогают лучше понимать грамматику русского языка.

Список литературы

1. О.Н. Чарыкова, И.А. Стернин. *Введение в языкознание*. - Воронеж, 2005.

2. Ф. Юревич, *Russian Language Journal / Русский язык*, Vol.34, No.119 (Fall 1980), pp.1-15 published by: American Councils for International Education (ACTR/ACCELS)

3. Ю.С. Маслов Введение в языкознание. М., 1975.

4. Н.Д. Арутюнова Предложение и его смысл. М., 1976

Қ.ОРАЗЫМБЕТОВТЫҢ ИЛИМИЙ МИЙНЕТЛЕРИНДЕ ИБРАЙЫМ ЮСУПОВ ДӨРЕТИЎШИЛИГИНИҢ ҮЙРЕНИЛИЎИ

Байниязова Т.Қ.
филология илимлери бойынша философия докторы (PhD), үлкен илимий хызметкер
Өзбекстан Республикасы Илимлер академиясы Қарақалпақстан
бөлими Қарақалпақ гуманитар илимлер илим-изертлеў институты
Нөкис, Қарақалпақстан, Өзбекстан

THE STUDY OF IBRAGIM YUSUPOV'S WORK IN THE SCIENTIFIC WORK OF K.ORAZIMBETOV

Bayniyazova T.
Senior Researcher
Karakalpak Research Institute of Humanities
Doctor of Philosophy on Philological Sciences
Nukus, Republic of Karakalpakstan, Uzbekistan
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Аннотация

Бул мақала Қ.Оразымбетовтың илимий мийнетлеринде шайыр И.Юсупов дөретиўшилигиниң үйренилиўи мәселесине бағышланған. Қ.Оразымбетов тәрепинен ҳәзирги қарақалпақ лирикасында көркемлик изленислер, сондай-ақ ҳәзирги қарақалпақ лирикасында көркем формалардың эволюциясы ҳәм типологиясы проблемаларын изертлеў барысында әдебий майданда И.Юсуповтың жетекшилик етиўи, шайыр тәрепинен өзине тән дөретиўшилик мектеп жаратылыўы айрықша итибар бериледи. И.Юсуповтың миллий әдебиятты раўажландырыў жолындағы хызмети, оның дөретиўшилик тулғасы келешекте де әдебиятшы-алымлардың турақлы дыққат орайында болатуғыны ҳаққында жуўмаққа келинген.

Abstract

This article is devoted to the study of the art work of the poet Ibragim Yusupov in the K.Orazimbetov's scientific research. By the process of research of the problem of artistic searches in modern Karakalpak lyrics, as well as the evolution and typology of art foms in modern Karakalpak lyrics, K.Orazimbetov's attention is focused on the leading role of I.Yusupov in the literary field, the creation of a kind poetic school. The author comes to the conciusion that I.Yusupov's merit in the development of national literature, his creative personality will be in the center of attention of literary Study in the future.

Таяныш сөзлер: шайыр тулғасы, қарақалпақ лирикасы, дөретиўшилик изленис, әдебий мектеп, поэзия, шығарма.

Keywords: personality of the poet, Karakalpak lyrics, creative searches, literary school, poetry, work.

Қарақалпақ әдебиятының көрнекли ўәкили, қарақалпақ поэзиясының байтереги И.Юсуповтың дөретиўшилиги миллий әдебияттаныўда турақлы дыққат орайындағы объектлердиң бири болып табылады. Әдебий сын тарийхы бойынша мийнетлерде [1], қарақалпақ әдебияты, миллий поэзияға арналған изертлеўлерде, баспа сөз бетлеринде жәрияланған сын мақалаларда шайырдың өзине тән жолы, прозалық, поэзиялық, драмалық шығармалар дөретиў жолындағы изленислери талқыланды. Шайырдың дөретиўшилиги бойынша Қ.Султанов, Г.Есемуратов, В.Ульяшовтың монографиялары жарық көрди [9]. Сондай-ақ, Ж.Мақсетова, М.Мәмбетова, А.Хамидова, Д.Пахратдинов, Қ.Мәмбетовлар тиккелей И.Юсуповтың шығармаларын үйрениўдиң ҳәр түрли аспектлерине бағышланған диссертацияларды жақлады [4]. Усы қатарда белгили илимпаз Қ.Оразымбетовтың изертлеўлери итибарға ылайық.

Қ.Оразымбетовтың «Ҳәзирги қарақалпақ лирикасында көркемлик излениўшилик (80-жыллар)» атамасындағы изертлеўинде И.Юсуповтың дөретиўшилиги өз сәўлелениўин тапты. Жумыста илимпаз XX әсирдиң 80-жыллары лирикасының характерли өзгешелигин белгилеп береди ҳәм шайырлардың дүньяны, ўақытты түсиниўге болған умтылыўшылығы көпшилик жағдайда жемисли жуўмақланғанын тастыйықлайды. Лирикалық шығармаларға баҳа бериўде әҳмийетли критериялардың бири ретинде қосықтың не ушын жазылғанлығын билиў, бунда шайыр сезимине тәсир етиўши нәрсеге (повод) итибарды қаратыў зәрүр, деген принципке жүгине отырып, Қ.Оразымбетов И.Юсуповтың «Пәлекли қоста түнеў» атлы қосығын анализлеў барысында төмендегише жуўмақ жасайды: «бул қосықта тәбият ҳаққында сөз етиў де, муҳаббат, өмир, заман ҳаққында сөз етиўлер де араласып жүрсе тематикалық жақтан жоқарыдағыдай принципте (*лирикалық шығармаларды сиясий лирика, философиялық лирика деп бөлип үйрениў* – **Т.Б.**) қосықты қандай лириканың тайпасына жатқарыўға болады? Ҳеш қайсысына!» [6, 52]. Усылайынша, илимпаз Қ.Оразымбетов И.Юсуповтың пенен бир қатарда С.Ибрагимов, Х.Дәўлетназаровтың лирикалық дөретпелерин таллаў арқалы лирикалық шығармаларды философиялық-медитативлик ҳәм

сиясий лирика деп бөлген оның мәнисине жуўап береди, деген жуўмаққа келеди.

Сондай-ақ, Қ.Оразымбетов тәрепинен лирикада форма саласындағы излениўшилик мәселеси сөз етилгенде, сүўретлеў қураллары, қосық қурылысы, поэтикалық дүркинниң раўажланыўы сыяқлы мәселелерге дыққат аўдарылады. Жумыстың II бабында Ж.Избасқанов, Б.Генжемуратов, С.Исмаилов, К.Реимов ҳәм т.б. қарақалпақ шайырларының қосықлары менен бир қатарда, И.Юсуповтың «Пәлекли қоста түнеў», «Байыўлы» сыяқлы дөретпелери таллаўға тартылады ҳәм, усылайынша, И.Юсуповтың лирикалық форма таңлаўдағы изленислерине унамлы баҳа бериледи [6, 72-74, 87-88, 93-94, 98-99].

Буннан кейинги ўақытта Қ.Оразымбетов тәрепинен қарақалпақ лирикасының теориялық проблемаларын үйреniўге бағышланған «Ҳәзирги қарақалпақ лирикасында көркем формалардың эволюциясы ҳәм типологиясы» (2004) монографиясы жарық көрди. Монографияда қарақалпақ шайырларының лирикалық дөретпелери таллаўға тартылады, соның менен бирге И.Юсуповтың дөретиўшилик изленислерине айрықша орын ажыратылғанының гүўасы боламыз. Бунда илимпаз өз устазы С.Ахметовтың И.Юсуповтың шайырлық шеберлигине тийисли айтылған: «Алыс Малайзия кешелеринде», «Төк таўындағы ойлар» қосықларында шайырдың ең тийкарғы жетискенлиги – эпикалық сюжетти лирикаға сиңдире алыўында, деген пикирине нәзер қаратады [7, 12]. Мийнетте мазмун ҳәм форманың бирлиги, қосықтың финалында берилетуғын жуўмақ, турмыслық материалға жантасыў, дәстүр ҳәм новаторлық ҳәм т.б. илимий-теориялық әҳмийеттеги мәселелерди үйреniў барысында көпшилик орынларда И.Юсуповтың лирикалық дөретпелеринен мысал келтирилген. Әсиресе, жумыстың «Лирикалық топлам – айрықша көркем форма сыпатында» деп аталған бабының екинши бөлиминде И.Юсуповтың дөретиўшилиги тиккелей объект сыпатында таңлап алынып, шайырдың «Дузлы самаллар» топламына әдебий-теориялық талқы жасалған, бунда автордың дөретиўшилик нийетинен келип шығып, лирикалық топлам дүзиў тәжирийбесине (лирикалық топламға атама қойыў, алғы сөз, аннотация жазыў, эпиграф байлаў, т.б.) дыққат аўдарылған.

Солай етип, ҳәзирги қарақалпақ лирикасында көркем формалардың эволюциясы ҳәм типологиясы проблемасын үйреniўде илимпаз Қ.Оразымбетов И.Юсуповтың қарақалпақ поэзиясын раўажландырыўдағы дөретиўшилик изленислерин жоқары баҳалап, «қарақалпақ поэзиясында поэтикалық мектеплер қәлиплести. Бул мектеплердиң ең көрнеклиси И.Юсуповтың мектеби болды. И.Юсуповтың мектеби ўәкиллери интеллектуаллық әдебият жаратты» деген жуўмаққа келеди [7, 181].

Өз гезегинде, Қ.Оразымбетов тәрепинен 1980-жыллардағы қарақалпақ лирикасында көркемлик излениўшилик, ҳәзирги қарақалпақ лирикасында көркем формалардың эволюциясы ҳәм типологиясы бойынша жүргизген изертлеўлери илимий орталықта қоллап-қуўатланып, қарақалпақ әдебияттаныўында бул изленислердиң илимий әҳмийети ҳәм зәрүрлиги айрықша атап өтилди. Мысалы, белгили илимпаз П.Нуржанов: «автордың бул көркем формалар туўралы илимий-теориялық жақтан улыўмаластырылған пикирлери, ойлары, болжаўлары ҳәзирги пайыттағы әдебий теориялық ой-пикир дүньямызға қосылған белгили үлес болғанлығын атап өтиўимиз керек», деп жазған болса [5], филология илимлериниң докторы, профессор Қ.Жәримбетов төмендегише пикир билдиреди: «Соңғы 30 жыллықтағы миллий лирикамыздың эволюциялық раўажланыў жолларын тарийхый көринисте ашып берген, ҳәзирги лирикада мазмун ҳәм форма қатнасларының дәрежесин айырған, ҳәзирги миллий лириканың әдебий байланыслар, әдебий тәсирлер нәтийжесинде рәңбәрең формалар, жанрлар менен толысыў процесин көрсеткен, киши лирикалық формалардың көркемлик тәбиятын, олардың әдебий қубылыс сыпатында өзгешеликлерин дурыс анықлаған, қосық қурылысы элементлериниң (қатарлар, уйқаслар, бәнтлер, ырғақ ҳ.т.б.) әмелий хызметлерин анық белгилеп берген. ...Қәне, енди илимий ой-пикирлер шеңберин кеңейтетуғын, илимий ҳәм әмелий пайдасы анық көринип туратуғын, заман талабына толық жуўап бере алатуғын, ҳадал мийнеттен туўылған, сынасаң сын, минесең мин көтеретуғын усындай жумыслар бола берсе» [2].

Жоқарыда аты аталған илимий изертлеўлерден тысқары, Қ.Оразымбетовтың авторлығындағы «Пародия түп нусқаға мүнәсип болса», «Туфлий қайда, шаш қайда?!», «Поэзия сарайының сәрдары», «Миллий орнаментлерге оранған поэзия», жоқлаў формасындағы «Поэзия аспанында бир жулдыз сөнди» сыяқлы И.Юсуповтың дөретиўшилигине арналған мақалалары баспа сөз бетлеринде жәрияланған болып, оларда шайырдың шығармаларын түсинип оқыўға, миллий поэзияны раўажландырыў жолындағы оның хызметин үйреniўге тийисли ой-пикирлери сәўлеленген [8].

Солай етип, Қ.Оразымбетовтың илимий жумысларында И.Юсупов дөретиўшилиги ҳәр тәреплеме таллаўға тартылды ҳәм шайырдың тулғасы, поэтикалық шеберлиги, қарақалпақ поэзиясында өзине тән жол салғаны айрықша атап өтилди.

И.Юсуповтың тәкирарланбас шайырлық талантынан дөреген шығармалары қарақалпақ әдебияттаныўының дыққат орайында турыўы нызамлы қубылыс болып табылады. Өйткени, илимпаз Қ.Жәримбетовтың көрсетип өткениндей, И.Юсупов «өзиниң баслы қуралы болған поэзия арқалы халқымыздын руўхында, ишки дүньясында ҳадаллық, дурыслық, туўысқанлық, дослық, жолдаслық, ўатан сүйиўшилик, азаматлық, пәк муҳаббат, оған садықлық сезимлерин оятты ҳәм тәрбиялады. Оның өлмейтуғын поэзиясы келешек әўладларды да усындай ҳасыл сезимлер менен

тәрбиялай алады, деп исеним менен айтыўымызға болады. ... Ҳәзир қайтыс болғанына он бир жыл болса да оның китаплары ең көп оқылатуғын, адамлар излеп журетуғын ҳасыл мүлкке, халқымыздың қәдирли руўхый ғәзийнесине айналды» [3, 73].

Бул жағдай, шайырдың жүйрик қәлеминен дөреген шығармалары, оның көркемлик дүньясы, қулласы – И.Юсуповтың дөретиўшилик тулғасы қарақалпақ әдебияттаныўында келешектеги илимий изертлеўлерге аркаў болары сөзсиз, деп тастыйықлаўға тийкар жаратады.

Әдебиятлар

1. Ахметов С. Қарақалпақ әдебий критикасы ҳәм әдебият илиминиң тарийхынан. – Нөкис: Қарақалпақстан, 1980. – 168 б.; Ахметов С. Қарақалпақ әдебий сыны: изертлеўлер. Нөкис: Қарақалпақстан, 1993. – 296 б.

2. Жәримбетов Қ. Сынасаң сын көтергендей мийнет. // Әмиўдәрья, 2006, №2

3. Жәримбетов Қ. Мәңги булақ (Уллы шайыр Ибрайым Юсуповтың поэзиясы ҳаққында гейпара ойлар) // Әмиўдәрья, 2019, №4, 73-78 б.

4. Мақсетова Ж. Ибрайым Юсуповтың поэтикалық шеберлиги. – Ташкент, 1991; Мәмбетова М. И.Юсупов поэзиясының қосық қурылысы. – Нөкис, 1999; Хамидова А. И.Юсупов творчествосы ҳәм Европа әдебияты (әдебий байланыслар ҳәм әдебий тәсирлер мәселеси). – Нөкис, 1999; Пахратдинов Д. И.Юсупов дөретиўшилигинде Шығыс классиклери дәстүрлери (әдебий байланыслар ҳәм тәсирлер). – Нөкис, 2001; Мамбетов Қ. Ибрайым Юсупов поэмаларының жанрлық өзгешеликлери. – Нөкис, 2019.

5. Нуржанов П. Лирикамызды үйрениўдеги жаңа бағдар. // Устаз жолы, 2005 жыл 28-май

6. Оразымбетов Қ. Ҳәзирги дәўирдеги қарақалпақ лирикасында көркемлик излениўшилик (80-жыллар). / Оразымбетов Қ. Танламалы шығармалар топламы. Еки томлық. Том I. – Нөкис: Билим, 2018. – 408 б.

7. Оразымбетов Қ. Ҳәзирги қарақалпақ лирикасында көркем формалардың эволюциясы ҳәм типологиясы. – Нөкис: Билим, 2004. – 188 б.

8. Оразымбетов Қ. Таңламалы шығармалар топламы. Еки томлық. Том II. – Нөкис: Билим, 2018. – 384 б.

9. Султанов Қ. Заманлас жаным менен. – Нөкис, Қарақалпақстан, 1972.– 144 б.; Есемуратов Г. Ибрайым Юсуповтың поэзиясы. – Нөкис: Қарақалпақстан, 1976. – 116 б.; Ульяшов В. Ветер земных дорог: Литературный портрет Ибрагима Юсупова. – Ташкент: Изд. лит. и иск-ва им.Гафура Гуляма, 1980. – 144 с.

THE ROLE OF EUPHEMISMS IN THE ENRICHING OF THE GERMAN AND THE ENGLISH VOCABULARIES

Yusifov E.,
PhD, associate professor of Azerbaijan University of Languages
Baku
Yusifova K.
Senior teacher of Azerbaijan University of Languages
Baku
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Abstract

Research indicate that euphemisms are not always used to beautify, but also to soften, alleviate, and sometimes to hide the essence of something. In order to increase, strengthen and sweeten the artistic effect of speech, the word artist creates a series of euphemisms in the choice of words, sometimes knowingly using softer, indirect, covert and well-intentioned expressions. In the German and the English languages, euphemisms are divided into 4 main groups according to the sources: religious euphemisms, socio-moral euphemisms, political euphemisms, socio-aesthetic euphemisms.

Religious euphemisms reflect socio-moral ideas that have a social, philosophical and moral content. Unlike religious euphemisms, socio-spiritual euphemisms contain various ethical norms in society – human morality, behaviour and attitudes. Political euphemisms are formed and used for certain political purposes. In every class society, the ruling circles try to deceive the masses by covering up their negative, vicious and unpleasant activities, and thus they achieve their reactionary and bandit goals. Socio-aesthetic euphemisms reflect the laws of etiquette and dignity.

Analyses indicate that euphemisms arise as a product of human creative thinking and contain the requirements of the specific characteristics of the word artist. Thus, it is obvious that euphemisms have a sharp effect, they are an important method and means in the language to explain a certain point, to reveal an intended issue. From this point of view, euphemisms can be considered as one of the necessary and useful linguistic techniques in the language, because the word is the main means and the first element of the language.

Keywords: a series of euphemisms, euphemistic sets, religious euphemisms, socio-moral euphemisms, political euphemisms, socio-aesthetic euphemisms.

In linguistics, euphemisms have been studied since the XIX century. At the end of the nineteenth century the German scientist G. Paul presented them as the well-known scheme of semantic changes. Works by A. Meyer, who studied taboos and euphemisms in ancient society, attracted the attention of scientists to this phenomenon in the first half of the twentieth century. But only during the last decades they have become the object of close attention of scientists. Scientists have been in generally unanimous in the definition of extralinguistic nature euphemisms.

In linguistic literature, a special linguistic phenomenon, which is closely related to the change of the meaning of a word, is characterized as a euphemism for the expression of an event or object in the objective reality in various indirect ways. The term "euphemism" of Greek origin is used to mean "a way of expressing words and expressions in other words." This term refers to the renaming of an expression of an object or event by another word or a combination of words, rather than by the words in which it is usually called. This descriptive name is not always used in the sense of beautification, but also in the sense of softening, alleviating, and sometimes concealing the essence of something. For this reason, euphemisms can be called the most widespread means of expression in literary language, which strengthen, sweeten and soften the speech and the meaning. In order to increase, strengthen and sweeten the artistic effect of speech, the speaker creates a series of euphemisms in the choice of words, sometimes knowingly using softer, indirect, covert and well-intentioned expressions.

It should be noted that language is completely national while thinking and cognition are universal processes. Although language is closely related to the objective reality and thinking, there are many similar or completely compatible linguistic phenomena in different languages. Euphemisms also exist in different languages as one of those linguistic phenomena. In general, linguistic events show that euphemisms are genetically closely related to religious taboos.

H. Vantsek, who studies euphemisms and dysphemisms in German, characterizes euphemisms as *Hüllwörter, Hehlwörter* – secret words, hypocritical words, words that serve to cover something up, and generally calls them means of softening effect. According to him, deceit and hypocrisy, indirect expression, consolation and restraint can be considered the main sources of euphemisms. Therefore, the idea of softening, covering up plays an important role in language expressions (7, 82).

According to A. Babayev there were many vulgar words and expressions at the initial stage of the formation of literary language but under the influence of culture the use of vulgar words was not acceptable and then euphemisms appeared. Therefore, in connection with the development of modern culture, many euphemisms have emerged in the language, and we have accepted these euphemisms as good speaking, softening of any harsh meaning, and rescuing it from vulgar shades. Dysphemisms are the opposite of euphemisms. In fact, while dysphemisms are taboo, they mean to express meaning in a harsh, rough, negative sense, effectively (2, 327-328).

S. Abdullayev notes that the meaning of any euphemism is "speaking well". "Speaking well" is, first of all, the truth of speaking well, turning the truth into a favourable reality, putting it in an appropriate form (1, 260).

We believe that sometimes the success of the idea conveyed to the listener depends on the rich language material and especially the euphemisms, and this depends more on the speaker's ability to use language material and euphemisms. At the same time, this word gives the speaker the impression of expressing a deep meaning, a broad idea in a few words, attracting more attention by adding the shades of meaning and variety to his thoughts, giving a beautiful, pleasant, gentle and softening effect. This skill requires the speaker to pay special attention to the use of euphemisms. Euphemisms are often taken as additional meanings of words. In that case, they are not the literal meaning of the word. Euphemistic expressions sweeten the event, story, speech, attract the attention of the listener and increase his influence in self-awareness, creating a more effective, stronger confidence in the listener, emotionally conveying the idea to him.

Euphemisms are divided into several groups in terms of the way they reflect life events. There are various reasons for the emergence of euphemisms in language. Euphemisms in German and English are divided into 4 main groups according to their sources: 1) religious euphemisms; 2) socio-moral euphemisms; 3) political euphemisms; 4) socio-aesthetic euphemisms.

Each type of euphemism has its own characteristics, each of which forms a combination of words and expressions of euphemistic nature, and at the same time their repetition increases the power and influence of thought. These features, which are characteristic of euphemisms, are clearly observed in the following examples. For example: instead of the verb *sterben* / *to die* the expressions *ins Gras beissen, die Radischen von unten begucken / to decease, to pass away*; instead of *Teufel* / *satan* the expressions *der Böse, der Widersacher, der Schwarze / devil* are used. These kinds of euphemisms both improve a person spiritually and positively and affect the change in his psychology, creating enthusiasm in him.

The oldest euphemisms derived from taboo words are called religious euphemisms. These types of euphemisms encompass religious and superstitious concepts, including human life, death, and disease. As people fear God, they are afraid to use the names of angels, devils, wild animals, insects and indirectly use various names and euphemisms. For example: *der Allwissende, der Allmächtige, Er, himmlischer Richter, potz, potz Wetter, potz Stern, potz Blitz / Heavens, Good Heavens, Lord, Good Lord, Oh, My Eye, Gracious* and so on.

„Wenn du vor deinem *himmlischer Richter* dich nicht mehr genierst" (H.Mann).

Religious euphemisms are widespread not only in linguistic literature, but also in the socio-political life of a number of peoples. These types of euphemisms re-

flect socio-moral ideas that have a social, philosophical, and moral content. In religious euphemisms, the description of life events is organically combined with the expression of a person's inner feelings, and they almost form a series of religious euphemisms to express emotions related to certain life events.

In ancient times, people were afraid to mention the name of satan because they were afraid of him, and sometimes they thought that the devils would easily find them by uttering his name. Therefore, the following series of euphemisms, which replaced the word *satan*, were widely used: *Böse, Schwarze, Deibel, Deixel, Teixel, Teuxel, Henker, Versucher, Wiedersacher, alter Feind, böser Feind, Popanz, Geier, Kuckuck /Evil, Black, executioner, tempter, old enemy, bad enemy, vulture, cuckoo* and so on.

Weiss *der Henker*, pardon, aber das Leben ist eine richtige Kalamität (F.C.Weiskopf).

Verfluchte Gören, *der Deubel* soll euch holen (W.Bredel).

In addition, the people avoided using that word because they were afraid of death and that is why they tried to use euphemisms in order to express their thoughts. For example, instead of the word *Tod /death* they used *Sensenmann, Knochenmann, Vetter Hein, Streckebein / grim reaper, bone man, cousin Hein, stretch leg;* instead of the word *Sterben / death* they used *Ableben, Heimgang, Hintritt, Hingang, Hinscheiden, Trennung, Auflösung / going home, entering, going, passing, separation, dissolution,* etc.

For these reasons a series of euphemisms have emerged in German to replace the verb *sterben /to die*. In his book "Life of words" K.Nyrop notes that several years ago L.Morandi investigated and found more than two hundred equivalents of the verb *to die* in Italian. K.Nyrop claims that the equivalent of the verb *to die* can be found in German more than twice (5, 16).

If we look at a series of euphemisms which are used instead of the verb *sterben /to die* in German and English, we will see that such words and expressions are used in the everyday speech of the German and the English people: *heimgehen, erbleichen, erblassen, verscheiden, hinuntergehen, ausleiden, hinübergehen, entschlummern, einschlummern; das Zeitliche segnen, für immer einschlafen, die Augen schliessen, zur ewigen Ruhe gehen, den Geist aufgeben, dem Gebote der Natur folgen, in die Wohnung des Friedens kommen, seine Stunde ist gekommen, den letzten Atemzug tun, nicht mehr unter den Lebenden sein / go home, turn pale, pass away, go down, suffer, pass over, fall asleep forever, bless the temporal, close your eyes, go to eternal rest, give up the spirit, follow the commandments of nature, come to the dwelling of peace, your hour has come, take your last breath, no longer be among the living,* etc.

2. Euphemisms have been uttered by wise elderly people and have been enriched and multiplied from generation to generation, from language to language. The peculiarity of euphemisms lies in its humanity and nationality. Since euphemisms have features of folk wisdom, they can also be called moral-educational words. Socio-moral euphemisms contain different ethical norms in society and arise for different reasons. Along with the emergence and development of each class society, various negative socio-spiritual events and the words and expressions that express them also appear in any language. Such euphemisms are characterized by ethical norms, such as human morality, behaviour and attitudes, which are inherent in every class society, both in the epoch of feudalism and capitalism, and in the period before or after it.

In his book "The Scientific Revolution of Mr. Eugen Dühring" F. Engels noted that if we look closely, we see that different moral norms have been formed in all three class societies, such as the feudal aristocracy, the bourgeoisie and the proletariat. It can be concluded that people form their moral views and worldviews in accordance with the instance of the class society in which they live, consciously or unconsciously, involuntarily in certain practical relationships, as well as in life conditions (4, 113).

O. Behaghel notes that this is the reason why words and expressions with different meanings appear in the language. For example, the word *sich betrinken* has several hundred variants that are stylistically similar to one another (3,116).

M.D. Stepanova and I.I. Chernysheva characterize euphemisms as softening, relieving and beautifying means and they link them with the multisystems in the development of meaning of words and expressions, noting that they arise for the following reasons:

1. Euphemisms arose in ancient times due to fear of natural and unnatural beings. For this reason, taboo words used in German cover lexical terms that are more closely related to religion and superstition. For example: instead of *Teufel* the words *Gottseibeiuns, der Böse, der Schwarze, der Versucher,* a series of euphemisms such as instead of *der Bär* the word *der Braune* were used. Thus, in Northern Europe, since the people were afraid to pronounce the bear's name they called them *"Braune*";

2. In some unpleasant situations, the use of the words and expressions that express tenderness, care, kindness, gentleness is widely used. For example: instead of *Krankheit* the words *Unwohlsein, Unpässlichkeit* are used.

3. In the sense of flirtation, dialect, instead of *Geliebte* the word *Freundin* was used (6, 44).

According to S.Abdullayev, euphemisms are used as common names for language movements today such as – to obscure the real truth, to cover up the facts, to present the reality in gloomy lines, sometimes to distort, to falsify the content of the name, to deviate from its true essence, to deliberately confuse reality, sometimes incomprehensible to show, in part, idiom, rhetoric, and so on (1, 262).

As it is known, moral euphemisms reflect the events of life, human desires, thoughts and feelings, and form opinions about man and the events connected with him. These types of euphemisms are sometimes presented through animals, plants, and objects through the use of artistic language, so that they are moral, instructive, and indirectly express the shortcomings of human relationships and bring them to the reader's attention. In such euphemisms, the speaker gives all the details of people's lives, their inner world, desires and

aspirations, thoughts and ideas, and the difficulties they face. As the ruling circles always try to hide the negative aspects of life, for this purpose, the speaker tries to use soft, gentle, lovable, charming, compassionate expressions to change their minds in other words. These types of euphemisms primarily cover negative socio-moral phenomena such as drunkenness, theft, crime and anti-social defects, shortcomings and immorality. For example, instead of the word *Lüge* /*lie* the words *Historie, Anecdote, Chronicle, Unwahrheit / History, Anecdote, Chronicle, falsehood;* instead of the verb *lügen* / *to lie* the verbs *dichten, phantasieren, spinnen, eine lebhafte Phantasie haben, das lange Messer handhaben, die Wahrheit verschweigen / fantasize, spin, have a lively imagination, handle the long knife, withhold the truth;* instead of the verb *betrügen* /*to seduce* the expression *jemandem ein X für ein U vormachen* / *fool someone into an X for a U;* instead of the verb *saufen* /*to get drunk* the expressions *sich benebeln, zu tief ins Glas sehen, zu viel auf die Lampe giessen, sich ein Licht anzünden, einen Tropfen über den Durst trinken / get foggy, look too deep into the glass, pour too much on the lamp, light a lamp, drink a drop over your thirst;* instead of the verb *stehlen / to thieve* the following series of euphemisms are widely used: *mausen, klauen, klemmen, stibitzen, organisieren, Mein und Dein verwechseln, etwas mitgehen heissen, lange Finger machen, lange Finger haben, eine kleine Unregelmässigkeit begehen, Finger nicht in der Tasche halten, geographische Untersuchungen in fremden Taschen machen / mouse, steal, pinch, organize, mix up mine and yours, go with something, make long fingers, have long fingers, commit a small irregularity, do not keep fingers in your pocket, do geographic investigations in someone else's pockets.*

Der andre aber *machte* späterhin *geographische Untersuchungen in fremden Taschen* (H.Heine).

While speaking about the lies of synonyms and different names of the same things in the language, S. Abdullayev notes that euphemisms serve the concept of being polite, adapting to the requirements and orders of the time, socio-political situation, taking into account the tendencies, dangers, tastes of the time, epoch, ensuring personal safety, in many cases, compliance with the requirements of coexistence, adherence to psychological and religious taboos, rules, and adherence to ethical and moral standards (1, 596).

As a result of research, we come to the conclusion that socio-political, moral and educational content plays an important role in socio-moral euphemisms. Thus, in such euphemisms, events are described in a pompous manner, and people in a solemn way. The speaker sometimes completes the idea with good-natured, pompous words, and such euphemisms reflect the conciseness of the idea. In such euphemisms, socio-moral ideas find their concrete expression; therefore, these euphemisms attract attention with their unique harmony and beauty of expression. The national way of life and national ideology are strong in social and Moral euphemisms. The product of nationalism, belonging to the people, and especially the figurative thinking of each nation is more pronounced in such euphemisms.

3. Political euphemisms are formed and used for certain political purposes. In every class society, the ruling circles try to deceive the masses by covering up their negative, flawed and unpleasant activities, and thus they achieve their reactionary and bandit goals. Therefore, they can easily deceive the masses by using the words and expressions which are often unknown and incomprehensible to the people. Such euphemisms play a more important role in the political activity of class societies. For example, during World War II, the German Nazis tried to hide their reactionary activities by using the words *Annexion* instead of *Länderraub / Land robbery* and *Nationalsozisten* instead of *Faschisten /Fascists.* They deceived the people with their reputation, and especially with the legend of the invincibility of Hitler's German army, by giving wide coverage to such a series of euphemisms in their political activities. For this purpose, a series of euphemisms has been widely used in German literature. For example, instead of the verb *erschiessen* the soft, beautiful expressions such as *Schluss machen, fertigmachen, verschwinden lassen, den Fall erledigen, schachmatt setzen* are widespread.

According to Abdullayev, linguistic facts confirm that it is impossible to imagine the speech behaviour of political figures, diplomats, government officials without periphrasis, especially without euphemisms and various exaggerations. Therefore, euphemistic sets have a more debilitating, neutralizing, and minimizing effect (1, 271).

We believe that political euphemisms are so rich and complex that the concept of euphemism does not cover them all. They are developed in the socio-political sphere, and these euphemisms are formed in a single dimension, in harmony. In this case, a series of socio-political euphemisms can substitute each other. However, as language develops, a new group of political euphemisms emerges in the political lexicon of different peoples in connection with emerging the political terms, which differ in their shades of meaning and power of expression. Such a group of euphemisms has its own peculiarities of development. The speaker sometimes describes the event, explains the subject, the intended issue, the conversation in such a way that he achieves a successful, good-natured mood inconveying the axis and system of these or other events, life events, as well as method of expression of life events and his thoughts about it to the listener with different ways.

4. Socio-aesthetic euphemisms reflect the laws of etiquette and dignity. Euphemisms are alludes to certain words and expressions or events. Euphemisms arise as a product of human creative thinking and contain the requirements of specific features of the art of speech. These types of euphemisms are often used in the process of speech and communication to express a certain attitude to life events, sometimes to arouse love or hatred in the listener, or to exalt something in his eyes, to expose, to explain the way out of the situation, etc. For this reason, if we look at the following series of euphemisms, we can clearly see the followings: instead of the expression *schwanger sein /to be pregnant* the expressions *in anderen Umständen sein, guter Hoffnung sein / to be dual, to be in a different*

situation; instead of the verb *gebären* / *to give birth* the expressions *dem Kinde das Leben schenken, das Kind zur Welt bringen, zur Welt kommen, das Licht der Welt erblicken* / *to give life to the child, give birth to the child, come into the world, see the light of day* are used. In some cases, the words and expressions expressing swearing, insults are substituted by such euphemisms in a very high way. For example: instead of *Betrüger* / *liar, swindler* the words *Ehrenmann* /*respectable, honorable person;* instead of *Luder* /*lowly, vile* the expressions *so eine Person* / *such a person* ; instead of *Feigling* /*coward, lung* the words *Grosser Held* /*brave, great hero* are used. Such euphemisms, which depict life events in a figurative and pleasant way, differ from one another in style and specific features. Socio-aesthetic euphemisms also aggravate the language with words and expressions by creating a series of synonyms in the language, enriching the vocabulary of the language, and in some cases obscuring the insidious goals and desires of people belonging to the upper classes.

Thus, the implied words and expressions are substituted by other ones. The speaker can increase the emotional power of thought using not the direct meaning of the word, but its additional, even conventional meaning. The using of the euphemisms creates an attractive communication environment to express the mood in a poetic way.

The formation of euphemisms in the language is usually closely related to the field of activity of the speaker. For example, the verb *sterben / to die* forms a series of different euphemisms for different occupations, as can be seen more clearly in the following examples: *der Matrose läuft in den Hafen ein / A sailor enters the port; der Bergmann fährt in die Grube / A miner goes to the mine; der Beamte wird in eine andere Welt versetzt / The officer changes his place to another world; der Anwalt tritt vor einen höheren Richter / The lawyer (human rights activist) appears before the authoritative judge; Der Gelehrte gibt den Geist auf / The scholar surrenders his soul; der Pfarrer segnet das Zeitliche / The priest blesses the time; der Soldat bleibt auf dem Platze / The soldier stays in place; der Reisende zieht die Reisestiefel an / The traveler wears shoes; der Gesandte wird abgerufen / The ambassador is called back to his country.*

In the above examples, we can see that they are a product of beauty, perfection, style and thoughtful creativity in the process of speech, they are said with great enthusiasm and pleasure. In general, the emergence of euphemisms serves as a fundamental stimulus, desire, intention and motivation for word creation, because it is necessary to cover up any concept, substitute it with another word, change it and create new words and expressions in the language. The simplicity and conciseness of euphemisms increase their effectiveness, strengthen the idea that they are spoken and connected, and at the same time sharply criticize the meaning of euphemistic expressions, satirical attitudes and moods that calm them psychologically. By using such words, an atmosphere of high spirits is created which keeps the people away from spiritual shocks, cover up their sufferings and give them a good mood.

A series of euphemisms causes new shades of meaning of existing words in the language to form. For example: *ins Gefängnis kommen- zu Vater Philipp kommen, auf Wasser und Brot gesetzt werden; im Gefängnis sitzen – Zeit hinter Schloss und Riegel verbringen, staatliche Entfettungskur durchmachen, hinter schwedischen Gardinen sitzen; Henker- Meister Peter, Hauptkassierer, der ungenannte Mann; hingerichtet werden- mit der Jungfer Hänfin Hochzeit machen, eine hanfene Halsbinde bekommen;* the words and expressions that make up a series of synonyms such as, *um die Ecke bringen- sich vom Halse schaffen, aus dem Wege schaffen, verschwinden lassen, töten, kalt machen* and others form new shades of semantic meaning as a result of the transfer of euphemistic meaning in the language. From this point of view, euphemisms as a semantic-lexical category play an important role in the enrichment of the vocabulary of the German language, not only in terms of quantity, but also in terms of quality.

Research indicates that euphemisms arise as a widespread language-communication phenomenon in the language in different ways:

1. One of the most important ways in which euphemisms arise is through the metaphorical transfer of words and expressions that exist in the language. For example: instead of the word *Gott* / *God* the expressions *himmlischer Richter* / *Ruler of the Heavens*; instead of the verb *sterben* / *to die* the verbs *heimgehen, erbleichen* / *to disappear*; instead of the expressions *wahnsinnig sein* / *to be mad, to lose one's mind* the expressions *eine Schraube los haben, verrückt* / *to miss a screw* are used.

2. One of the most important ways in which euphemisms arise is closely related to metonymy. For example: instead of the word *Gott* / *God* the words *der Allwissende, der Allmächtige* / *Omniscient, Omnipotent*; instead of the word *Teufel* / *satan* the words *der Böse* / *forces of evil*; instead of the expression *im Gefängnis sitzen* / *to be in prison* the expressions *hinter Schloss und Riegel sein* / *to be a prisoner* are used.

3. Lithotic structures are important in the formation of euphemisms. For example: instead of *betrunken sein* /*to be drunk* the expressions *angeheitert sein, ein bisschen lustig sein / to be a little merry, to rejoice*; instead of *stehlen* / *to steal* the expressions *eine kleine Unregelmässigkeit begehen* / *to make a little disorder*; instead of *krank* / *sick* the expressions *nicht wohl sein, unpässlich sein* / *to be a little sad, not to be good, not to be safe* are used.

4. Derived words from other languages and dialects play an important role in the formation of euphemisms in the language. For example: instead of *Lüge / lie* the words *Historie Anecdote* / *history, anecdote*; instead of *Teufel* / *satan* the dialect word like *Deubel* are used.

5. Jargonisms also have a place in the formation of euphemisms. For example: instead of *stehlen* / *to steal* the verbs *mausen, klauen, stibitzen* /*whipping – that is,*

quietly, slowly); instead of *sterben / to die* the expressions *ins Gras beissen* / *to draw* are used.

6. Some abusive speech also plays a role in the formation of euphemisms. For example: instead of the adjectives *verflucht* / *cursed, filthy, disgusting* the words *verflixt* / *abominable* are used.

While speaking about the power of euphemisms, such sweet-sounding words soften, calm and weaken the listener. Thus, it is clear that euphemisms have a sharp effect, they are an important method and means in language to explain a certain point, to reveal an intended issue. From this point of view, euphemisms can be considered as one of the necessary and useful language techniques, because the word is the main means and the first element of the language. In fiction, the author creates a series of euphemisms, sometimes using a number of euphemistic expressions that are important in relation to the idea being expressed in order to increase the emotional power of speech and its impact.

We would like to note that in order to increase the emotional impact of the thought expressed in the process of communication, to create a strong, pleasant feeling in the listener, the softening expression of the thought requires a special skill from the speaker. The use of a series of euphemisms, in other words, euphemistic expressions, which are often used in ordinary speech and works of art, and even serve to strengthen the artistic and emotional strengthening of speech and expression, is preferred. As some euphemisms are more common and easily understood by the majority, the word artist prefers to use these terms in communication.

Linguistic facts indicate that the approach to euphemisms in the context of a wide semantic group, the field of words, as the richness of the language's possibilities of expression, the expression of the same concept in different words leads to its fragmentation, or more precisely, influences to the perception of the word artist. Euphemisms draw strength from the spiritual and moral energy and moral life of the people as an indicator of moral values and worthlessness. Whoever uses euphemistic possibilities such as softening, concealing, and covering up, more correctly and skillfully always succeeds.

In general, the characteristic feature of euphemisms is that the style of expression of the thought is set in accordance with its content, inner meaning, softening effect is influenced to the expression, its emotional meaning. Excitement, high tone, attention, and calmness are used for euphemistic expressions. Words spoken in a calm, ordinary way have a deeper and more serious meaning. For this reason, euphemisms are important in enriching the vocabulary of the language as means of artistic and linguistic expressions, which serve to convey the intended thought, idea to the listener, the reader, the other side in a softer, more covert, indirect way.

References

1. Abdullayev S. Ə. Qeyri-səlis dilçilik təcrübəsi. Bakı, "Victory", 2013

2. Babayev A.M. Dilçiliyə giriş. Bakı, "Maarif", 1992

3. Behaghel O. Die deutsche Sprache, Halle (Saale), 1954

4. Engels Fr. Hern Eugen Dührings Umwälzung der Wissenschaft, Berlin, 1953

5. Nyrop K. Das Leben der Wörter, Leipzig, 1903

6. Stepanova M.D., Cernyşeva I.I., Lexikologie der deutschen Gegenwartssprache, Moskau, "Vyssaja Skola", 1986

7. Christiane Wanzeck, Lexikologie, Beschreibung von Wort und Wortschatz im Deutschen, Vandenhoeck und Ruprecht GmbH, Göttingen, 2010

PHYSICAL SCIENCES

INTERACTION OF NIKEL ATOMS WITH GROUP VI IMPURITIES IN THE SILICON LATTICE

Bakhadirkhanov M.,
Tashkent State Technical University,
Tashkent, Uzbekistan
Iliev X.,
Tashkent State Technical University,
Tashkent, Uzbekistan
Tursunov M.,
Termez State University,
Termez, Uzbekistan
Karshiyev Sh.
Tashkent State Technical University,
Tashkent, Uzbekistan
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Abstract

The results of the study of silicon alloyed with Ni and Se atoms are given. The introduction of nickel was carried out by dusting the silicon surface and then by "low temperature" diffusion for 0.5 h at T = 1150˚C. Additional heat treatment of Ni and Se alloyed samples was performed in the same way (T = 820˚C, for 0.5 hours). The composition of the samples was studied using SEM. The change in the properties of Si <Ni, Se> is explained by the formation of binary complexes of nickel and selenium atoms in the crystal lattice of silicon.

Keywords: binary complex, nickel, selenium, open circuit voltage, short circuit current.

INTRODUCTION

Silicon remains the main material for modern electronics. The introduction of an electroneutral molecule or complex objects containing introductory atoms of various elements into a silicon lattice leads to the detection of new effects [1]. This paper presents the results of studies of solar cells based on silicon added with Ni and Se atoms. We know that thermal and radiation defects in silicon are mainly determined by the optically active oxygen concentration. Because the control of such oxygen concentration creates a great technological opportunity. the study of nickel and oxygen segregation processes is important. This is because nickel atoms in silicon have a sufficiently high solubility $N \sim 10^{18}$ cm^{-3} and they are in the electroneutral state [2].

The starting material was monocrystalline silicon obtained by the Chokhralsky method with specific resistance p-type ρ=0,5 Ohm·cm, and n-type ρ=100 Ohm·cm. In these samples, the optically active oxygen concentration is $N_{O2} = (5 \div 6) \cdot 10^{17}$ cm^{-3}. The sample size is $1 \times 4 \times 0.8$ mm^3.

All samples were mechanically and chemically treated under the same conditions. The electrical parameters of the samples were determined using the Hall effect. The contact part of the samples was coated with nickel with a chemical hypophosphite solution.

Table 1.

The average value of the initial samples is the electrical and optical parameters.

Source material	Conductivity type	ρ	μ	p, n cm^{-3}
KDB-0,5	p	0,5	329	$4 \cdot 10^{16}$
KEF-100	n	97	1340	$4{,}8 \cdot 10^{13}$

THE EXPERIMENTALLY PART

Diffusion of nickel atoms was carried out at *T* =1150 °C for *t*=30 minutes in quartz ampoules using the "low temperature stepwise" diffusion method. Diffusion of the Se atoms was then performed at t = 1200 °C for *t*=30 min. As a result, p-n-shaped structures, ie photocells, were obtained. Given the relatively high binding energy in the NiSe molecule and the high diffusion coefficient of nickel, the additional heat treatment temperature was selected at T = 820 °C. After additional heat treatment, the photocell (SC) voltage was measured and the short-circuit current density (J_{sc}) was measured. In Si <B, Ni, Se> photocells, the J_{sc} value increased by 22% compared to Si <B, Se> (SC), while the U_{oc} value increased from 427 mV to 480 mV, ie by 12% (Table 2). The increase in the parameters of (SC)s after heat treatment Si <B,Se> was explained by the hetering of selenium atoms to recombination in silicon [3-4]. After the diffusion process, such properties of selenium atoms are almost non-existent, as they do not have time to become electroactive due to rapid cooling after diffusion. Long-term additional heat treatment activates the formation of complexes, which has led to uncontrolled intrusions and heterogeneity of point defects.

Table 2.

Electrophysical parameters of solar cells after additional heat treatment at a temperature of T = 820 °C.

Samples	J_{sc}, mA/cm^2	U_{oc}, mV	P_{max}, mW/cm^2
Si<B, Se>	18	427	7,686
Si<B, Ni, Se>	22	480	10,560
Si<B, Ni, Se> settings SC Si<B, Se> change in relation to SC	+22%	+12 %	+37.4%

Thus, the technologically optimal conditions for the formation of complexes of the Si_2NiSe type were determined - the diffusion temperature of selenium and nickel input atoms was T = 1160 °C, the temperature of additional heat treatment (complex formation) was T= 820 °C. After diffusion and additional heat treatment, it was found that SC parameters increased by U_{oc} - 12%, J_{sc}- 22%, P_{max} - 37.4% [5-6].

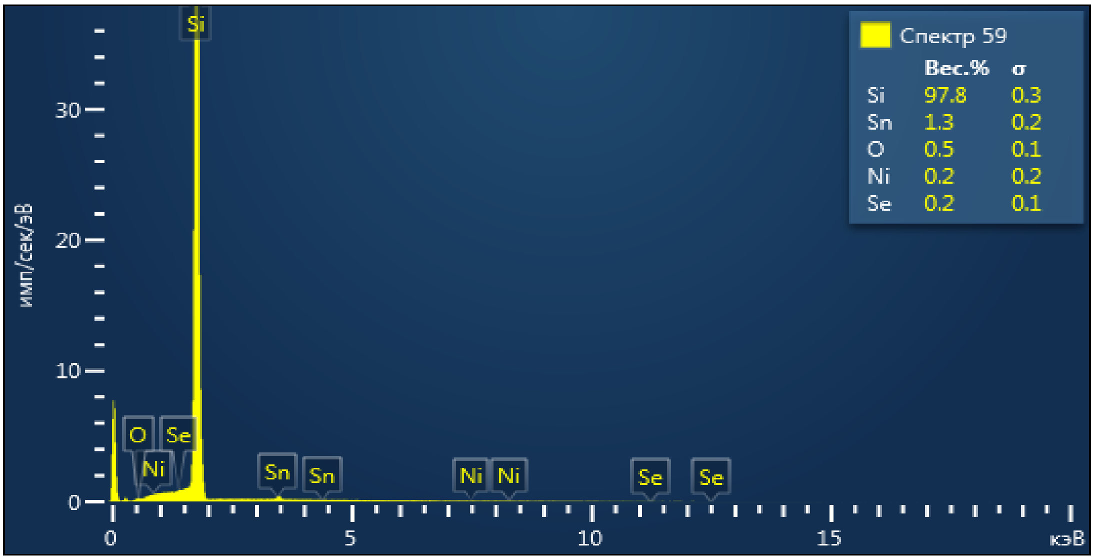
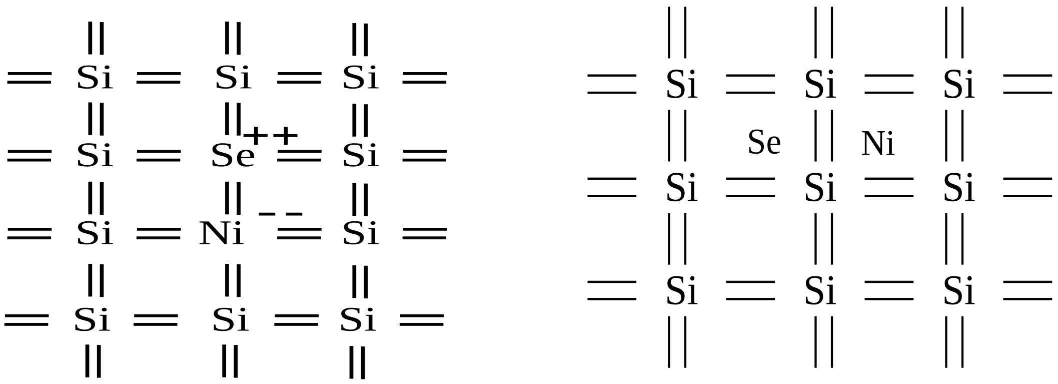


Figure 1. Composition of complexes of nickel and selenium atoms (SEM) formed in silicon after diffusion.



a) *b)*

Figure 2. Possible options for the formation of nickel-selenium complexes in the silicon lattice. a) - in adjacent nodes of the silicon lattice, b) - in the interstices of the silicon lattice.

CONCLUSION

After the experiments, we determined the composition of the sample using an electron microscope (Figure 1.). The results showed that the amount of nickel and selenium atoms in silicon was the same. This indicates that nickel and selenium atoms in silicon combine to form binary complexes. The results of the increase in silicon salinity U_{oc} – 12 %, short-circuit current J_{sc} – 22 %, power P_{max} - 37.4 % also confirm the results. The new materials that is Si enriched with binary cells of $Si_2B_{VI}^{++}Ni^{--}$ type allows us create on one's base the new optoelectronic and nano electronic devices and also high effective photo elements based Si having same the best parameters than expensive many cascade photo elements based $A^{III}B^{V}$ (Figure 2). That what is the new scientific branch which requires carry out the complex experimental and theoretical investigations [7-8].

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interests.

References

1. Mildvitskii M.G., Chaldishev V.V., Nano size atom clusters in semiconductors is the new method to formation of materials properties. Review (in Russian). // Fizika i texnika poluprovodnikov. Russia. 1998. V. 32. Issue 5. pp. 513-522.

2. Bakhadirxanov M.K., Iliyev X.M., Mavlonov G.Kh., Ayupov K.S., Isamov S.B., Tachilin S.A. Si with magnetic nano clusters of Mn atoms is the new class photo magnetic materials (in Russian) // Jurnal texnicheskoy fiziki. Russia. 2019. V. 89. Issue 3. pp. 421-425.

3. Bakhadyrkhanov M.K., Askarov Sh.I, and Norkulov N. Some Features of Chemical Interaction between a Fast Diffusing Impurity and a Group VI Element in Silicon. // Physics state solid. 1994. No. 142. pp 339-346.

4. Bakhadyrkhanov M.K., Iliev Kh.M, Tursunov M.O., Isamov S.B., Koveshnikov S.V., Madjitov M. Kh. Electrical Properties of Silicon Doped with Manganese via High-Temperature Diffusion // Inorganic Materials. 2021. Vol. 57, No. 7, pp. 655-662.

5. Bakhadyrkhanov M.K., Isamov S.B., Zikrillaev N.F., Tursunov M.O. Anomalous Photoelectric Phenomena in Silicon with Nanoclusters of Manganese Atoms // Semiconductors, 2021, Vol. 55, No. 6, pp. 636–639

6. Bakhadyrkhanov M.K., Mavlonov G.Kh., Isamov S.B., Iliev Kh.M., Ayupov K.S., Saparniyazova Z.M., and Tachilin S.A. Transport Properties of Silicon Doped with Manganese via Low Temperature Diffusion // Inorganic Materials. 2011. Vol. 47, No. 5, pp. 479-483.

7. Iliev Kh.M, Tursunov M.O., Koveshnikov S.V., Khudaynazarov Z.B. Research of properties of silicon with binary nanoclusters with participation of Mn and Se atoms // Semiconductor Physics and Microelectronics. 2020, Vol. 2, Issue 2. pp. 59–62.

8. Ismailov K.A, Iliev X.M, Tursunov M.O, Ismaylov B.K. Formation of complexes consisting of impurity Mn atoms and group VI elements in the crystal lattice of silicon. // Semiconductor Physics, Quantum Electronics & Optoelectronics. 2021, Vol. 24, No. 3, pp. 255–260.

ДИЕЛЕКТРИЧЕСКАЯ ПРОНИЦАЕМОСТЬ ТВЕРДОГО РАСТВОРА $(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$

Гурбанов М.М.,
кандидат физико-математических наук, доцент,
Годжаев М.М.,
кандидат физико-математических наук, доцент,
Гашимова А.И.
доктор философии по физико-математическим наукам,
кафедра общей физики и методики преподавания физики,
Сумгаитский государственный университет
Сумгаит, Азербайджан

DIELECTRIC PERMEABILITY OF A SOLID SOLUTION $(As_2Se_3)_{0,8}$ - $(As_2S_3)_{0,2}$

Gurbanov M.,
Candidate of Physical and Mathematical Sciences,
Associate-Professor,
Gojayev M.,
Candidate of Physical and Mathematical Sciences,
Associate Professor,
Hashimova A.
PhD on of Physical and Mathematical Sciences,
Department of general physics and methods of teaching physics,
Sumgait State University
Sumgait, Republic of Azerbaijan
DOI: 10.5281/zenodo.6825897

Аннотация

В данной работе приводятся результаты измерений диэлектрической проницаемости твердого раствора $(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$. Приводятся табличные данные значений индуктивности, сопротивлений, электропроводности, эффективности, реактивных и комплексных сопротивлений. В работе также показана возможность определений молекулярной поляризации по экспериментальным данным диэлектрической проницаемости.

Abstract

In this study, the dielectric constant of a solid solution $(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$ was measured. Measurements were made on a high-precision E7-20 (RLC) imitation measuring device. The values of inductance, resistance, conductivity, efficiency, reactive resistance, and complex resistances are given in tabular form. The possibility of determining the molecular polarization on the basis of experimental values of dielectric constant is shown.

Ключевые слова: индуктивность, емкость, активное сопротивление, реактивное сопротивление, проводимость, диэлектрическая проницаемость, коэффициент поляризации.

Keywords: inductance, capacitance, active resistance, reactive resistance, conductivity, dielectric constant, polarization coefficient.

As_2Se_3 and As_2S_3 compounds are promising materials for the development of optical memory elements and resistance converters. In these materials, the conversion effect is mainly associated with the transition from the glass phase to the crystalline phase. Electrical conductivity and dielectric constant play a key role in the management of such inverters. These materials are also used in laser technology [1, 2].

The study of the physical properties of solid solutions obtained on the basis of these compounds is also relevant in terms of expanding the scope of practical application. In this study, the values of a number of electrical parameters of the solid solution $(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$ determined by the modern E7-20 (RLC) imitation measuring device are given in tabular form and the possibility of calculating the polarization coefficient is shown.

$(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$ solid solution was synthesized from the literature on the basis of existing methodology and X-ray analysis was performed. It was found that this solid solution is also a crystalline analogue of the As_2Se_3 compound and crystallizes in a monoclinic structure. Cage parameters a=11,95Å; b=9,63Å; c=4,26Å ; β=$90^0 28'$ was measured [3]. The samples were prepared in the form of a flat capacitor to die the electrical parameters. In this case, the thickness of the samples was 0.05 ÷ 0.08 cm. Measurements were made on an E7-20 (RLC) imitation measuring device with high accuracy and sensitivity. Here, as in traditional methods, voltmeter-ammeter measurement method is used.

However, this method has many advantages. First of all, it should be noted that the measurements are made at very high speeds (25 measurements per sec-

ond). Here, at the same time, inductance (L), capacitance (C), active resistance (R), conductivity (G), efficiency (Q), reactive resistance (X) and complex resistance (Z) are determined.

Another advantage of this method is that measurements can be made in an electric field with a wide range of frequencies ($f = 20 \div 10^6 Hs$). At the same time, the accuracy of the measurements is higher. The relative error when measuring L, C and R parameters is ± 0.001%.

The working frequency used in the measurement is transferred from the generator to the converter in the measuring system, where it is divided into two sinusoidal voltages and converted into a form visible in numbers. The values of the measured parameters are determined by calculation and are displayed.

This measuring device also has software, and the values of all studied parameters are determined and recorded [4].

The results of measurements carried out in the electric field of different frequencies at room temperature for a solid solution $(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$ are given in the table.

Table

f, kHs	C, pF	R, MOm	Z, MOm	ε
0,025	2,7	9900	2400	35,64
0,5	2,4	4600	133	31,68
5	2,3	700	14	30,36
10	2,2	400	7	30,09
20	2,1	100	3,5	29,71
100	2,4	3,4	0,65	31,94
200	2,5	9,9	0,32	33,13
500	2,6	10	0,12	34,32
1000	3,1	1,6	0,05	40,65

As can be seen from the table, as the frequency of the electric field changes, both the active and complex resistances decrease, and the value of the dielectric constant, as well as the electric capacitance, remains almost unchanged. Such a change can be attributed to the molecular polarization that takes place within the substance under the influence of the field.

In order to study the possible changes in the molecular structure within a substance under the influence of an electric field, the molecular polarization based on the table values of dielectric constant of a solid solution $(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$ can be determined.

It is known that there is such a relationship between the dielectric constant (ε) and the polarization coefficient (β).

$$\frac{\varepsilon-1}{\varepsilon+2} = \frac{n\beta}{3} \cdots \quad (1)$$

here - n is the number of charged ions per unit volume. Its value can be determined in this way by the molar mass (M), density (ρ) and Avagadro constant N_A of the substance.

$$n = \rho \frac{N_A}{M} \cdots \quad (2)$$

From these formulas we get

$$\beta = \frac{3(\varepsilon-1)M}{(\varepsilon+2)\rho N_A} \cdots \quad (3)$$

Thus, by finding the value of β, it is possible to draw some conclusions about the molecular changes that take place within matter on the basis of existing theoretical models. The value of β calculated on the basis of the dielectric constant corresponding to the average frequency intervals of the field for a solid solution $(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$ was $\sim 3 \cdot 10^{-22}\ sm^3$.

It should also be noted that the conversion effect in memory elements made from the studied solid solution $(As_2Se_3)_{0,8} - (As_2S_3)_{0,2}$ is due to the phase transition between the glass and the crystal structure happens. The high electrical conductivity of these materials is due to the sliding or displacement of atoms inside the crystal.

References

1. С.В. Немилов. Оптическое материаловедение: Термодинамические и релаксационные свойства стеклообразуюших расплавов и стекол. М.: 2014. 120 с.

2. Г.З. Виноградова. Стеклообразование и фазовы равновесия в халькогенидных системах М.: Наука, 1984. 176 с.

3. Abrikosov N.Kh., Bankina V.F., Poretskaya L.V., Shelimova L.E. Semiconductinq II – VI, IV – VI and V – VI compounds. Plenum, New York, 1969, 252s.

4. Справочник по радиоэлектронным устройствам: в 2-х томах. Под ред. Д.П. Линде – М: Энергия (http:// lib.mexmat.ru) /books/ 1978. 378 с.

TECHNICAL SCIENCES

RESEARCH OF DYNAMIC CHARACTERISTICS OF CNC LATHES

Shevchenko O.
Doctor of Sciences in Engineering, Professor,
Igor Sikorsky Kyiv Polytechnic Institute
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Abstract
The article presents the methodology and results of experimental studies of the dynamic characteristics of a CNC lathe. The sequence of conducting research, the necessary apparatus and equipment are recommended. The influence of the dynamic characteristics of the main components of the machine on the accuracy of the shape of the cross-section of the surfaces of the parts processed on it was evaluated, and ways of improving the quality of turning processing were recommended.
Keywords: CNC lathe, dynamic characteristics, accuracy of parts processing.

The occurrence of oscillating processes in machine tools negatively affects the accuracy and quality of the machined surfaces of parts, reduces the technological capabilities of the machine tool. The availability of knowledge about the real dynamic characteristics of individual components of the machine tool makes it possible to determine ways to improve the dynamic quality and to develop recommendations for improving its design. Experimental determination of frequencies of self-oscillations of components and elements of the machine tool, their spectral analysis allows to determine resonant phenomena during the operation of the machine and to recommend measures to reduce their harmful effects [1].

Experimental researches of the dynamic characteristics of lathes are recommended to be carried out in the following sequence: - determination of natural oscillation frequencies of individual units of the machine; - determination of frequency spectra of relative oscillations of the tool and workpiece without cutting at different spindle rotation frequencies and during cutting; - definition of logarithmic decrements of oscillations of machine tool units.

To register and analyze vibrations, it is necessary to have equipment for vibration diagnostics with piezoelectric accelerometers, an analog-to-digital converter and a computer program for frequency analysis of vibrations. When registering the relative vibrations of the tool and the workpiece at idle speed and during cutting, it is effective to use a vibration meter with a non-contact eddy current sensor.

When determining the natural frequencies of oscillations of the units, measurements are performed in the planes perpendicular and parallel to the bed guides, parallel to the directions of the P_y and P_z components of the cutting force. The impact on the object of measurement is carried out by an impulse impact, and free damping oscillations are simultaneously recorded along two coordinates. Accelerometers are installed using permanent magnets on the surfaces of the corresponding unit of the machine tool.

To determine the values of natural frequencies oscillations of unites; frequencies with the highest levels of vibration acceleration are selected from the spectrum (amplitude-frequency characteristic). Further, these data are compared with the graphs of changes in the amplitude of oscillations over time after the impulse exposure, and a conclusion is made about the actual values of the frequencies of natural oscillations of unites under research.

Vibrometer with a non-contact eddy current sensor is used to study the relative vibrations of the tool and the workpiece without cutting and during cutting. Sensor is fixed on the faceplate of the turret head of the machine in such a way that there is a gap of 0.5-0.8 mm between its measuring surface and the cylindrical mandrel clamped in the chuck of the lathe. Vibrometer registers the fluctuations of the gap between the mandrel and the measuring surface of the sensor. The dimensions of the mandrel and the measurement scheme are shown in Fig. 1. To reduce the impact of the mandrel runout, it is necessary to ensure its accurate installation in the spindle chuck with a radial runout of no more than 1μm, or after installation in the chuck, perform a clean turning of the measuring surface of the mandrel, which will compensate for the errors of installation [2].

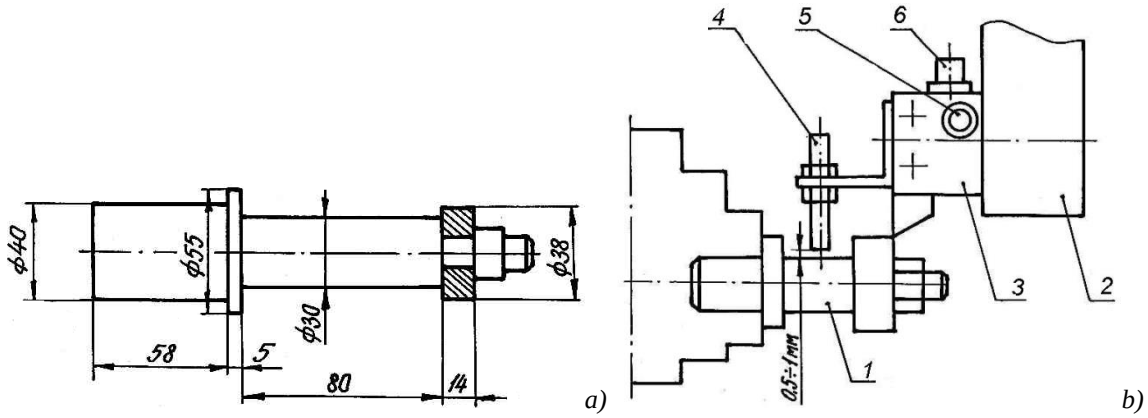

Fig. 1. The dimensions of the mandrel with a set of replaceable sample parts (a) and the arrangement of sensors during the determination of the relative vibrations of the cutting tool and the workpiece during cutting (b), where 1 – the mandrel with the replaceable sample part, 2 – the faceplate of the turret head, 3 – toolholder, 4 – eddy current sensor, 5 and 6 – accelerometers

In the course of research, the natural oscillation frequencies of the following unites of the lathe model 1П420ПФ40 were determined: - a short mandrel with a length of 150 mm and a diameter of 40 mm, when measured at a distance of 100 mm from the end of the chuck; - turret head faceplate; - turret housing; - spindle headstock housing; - caliper slides, etc. (examples in the Table 1).

Table 1

Frequencies of free oscillations of units of the lathe in the range of 0-1000Hz

№	Measurement object	Basic frequency, Hz		Logarithmic decrement of oscillations, λ	
		Direction P_y	Direction P_z	Direction P_y	Direction P_z
1.	Mandrel in the chuck: projection 100mm, *d*=40mm, length *l*=150mm	432	450	0,25	0,34
2.	Turret head faceplate	120	110	0,52	0,57
3.	Turret head housing	265	265	0,3	0,27
4.	Longitudinal slides of the caliper	75	75	0,24	0,27
5	Spindle headstock housing	97	97	0,77	0,77

The research of the relative vibrations of the cutter and the workpiece without cutting on the working lathe was carried out in the range of rotation frequencies of the spindle unit 200÷4000 rpm (3.33÷66.6 Hz) with a resolution of 200 rpm. In Fig. 2 shows the total spectrum of the maximum values of vibration accelerations in the frequency range 0÷100 Hz. Change in rotation frequency after 200 rpm allows you to introduce sequentially forced oscillations with a discreteness of 3.33 Hz into the system. The highest level of relative oscillations was registered at a frequency of 48.5 Hz (51 dB). In the main drive of the lathe, which consists of a motor, a belt drive and a spindle assembly, the main source of the increased level of oscillations at a frequency of 48.5 Hz is the belt drive. By visual observations of the operation of the transmission during the experiment, an increase in the amplitudes of the belt oscillation was registered during the rotation of the spindle with frequencies close to 3000 rpm. The source of resonance was eliminated by introducing an additional belt tension roller into the belt drive.

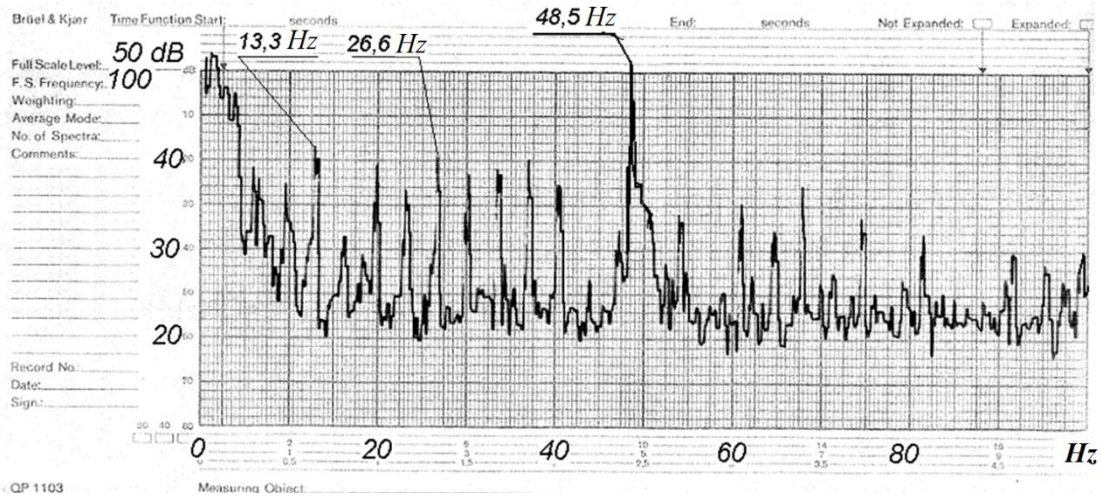

Fig. 2. The total spectrum of the maximum values of vibration accelerations of the relative vibrations of the cutter and the workpiece without cutting during spindle rotation in the frequency range of 200÷4000 rpm with a discreteness of 200 rpm

The evaluation of the influence of the dynamic characteristics of the main components of the machine on the accuracy of the shape of the cross-section of the surfaces of the parts processed on it was carried out by processing a batch of steel parts by carbide plate cutter at cutting conditions that varied in the following range: cutting speed V = 80÷400 m/min; feed S = 0.06÷0.3 mm/rev; cutting depth t = 0.5÷2.5 mm. Cutting researches were carried out according to the plan of a three-factor five-level experiment 3^5//36 [3]. Errors of the shape of the cross section of the parts, which were estimated by deviations from roundness, at S = 0.06 mm/rev, t = 0.5÷1.5 mm, V = 100÷300 m/min did not exceed 3 μm.

In Fig. 3 shows an example of the circular graph of the surface of the processed sample No. 20 according to the plan of the experiment with cutting conditions V = 373 m/min (3500 rpm), S = 0.12 mm/rev, t = 2.0 mm. The circular graph shows the traces of relative oscillations of the cutter and the workpiece during cutting in the form of errors in the shape of the cross-section of the sample part. Oscillations with frequencies corresponding to multiple harmonics of the spindle rotation frequency are displayed on the circular graph in the form of facets. The reason of part facets may be the uneven stiffness along the angular coordinate of the clamping three-cam spindle chuck, which held the mandrel with the sample parts during cutting and was a source of parametric fluctuations.

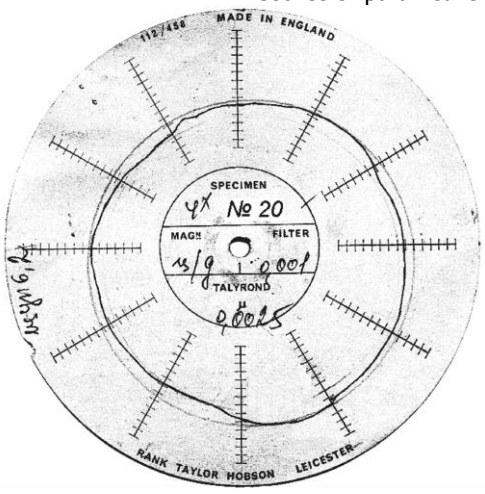

Fig. 3. Circular graph of the surface of the processed part with cutting conditions V = 325 m/min (2800 rpm), S = 0.24 mm/rev, t = 0.5 mm

As a result of the data analysis according to the experimental plan 3^5//36, a mathematical model with a multiple correlation coefficient of 0.973 and an approximation error of 9.12% was obtained. In Fig. 4 shows the results of calculating the dependence of the deviation from the roundness of the surfaces of the machined parts on the cutting mode. Optimization of the out-of-roundness parameter by the minimum value for feed S = 0.15 mm/rev gave the following results: out-of-roundness - 1.22 μm; at t = 1.0 mm and V = 170 m/min. The analysis of the regression coefficients of the mathematical model showed that the deviation from the roundness of the machined surfaces of the parts is influenced by all the parameters of the cutting modes.

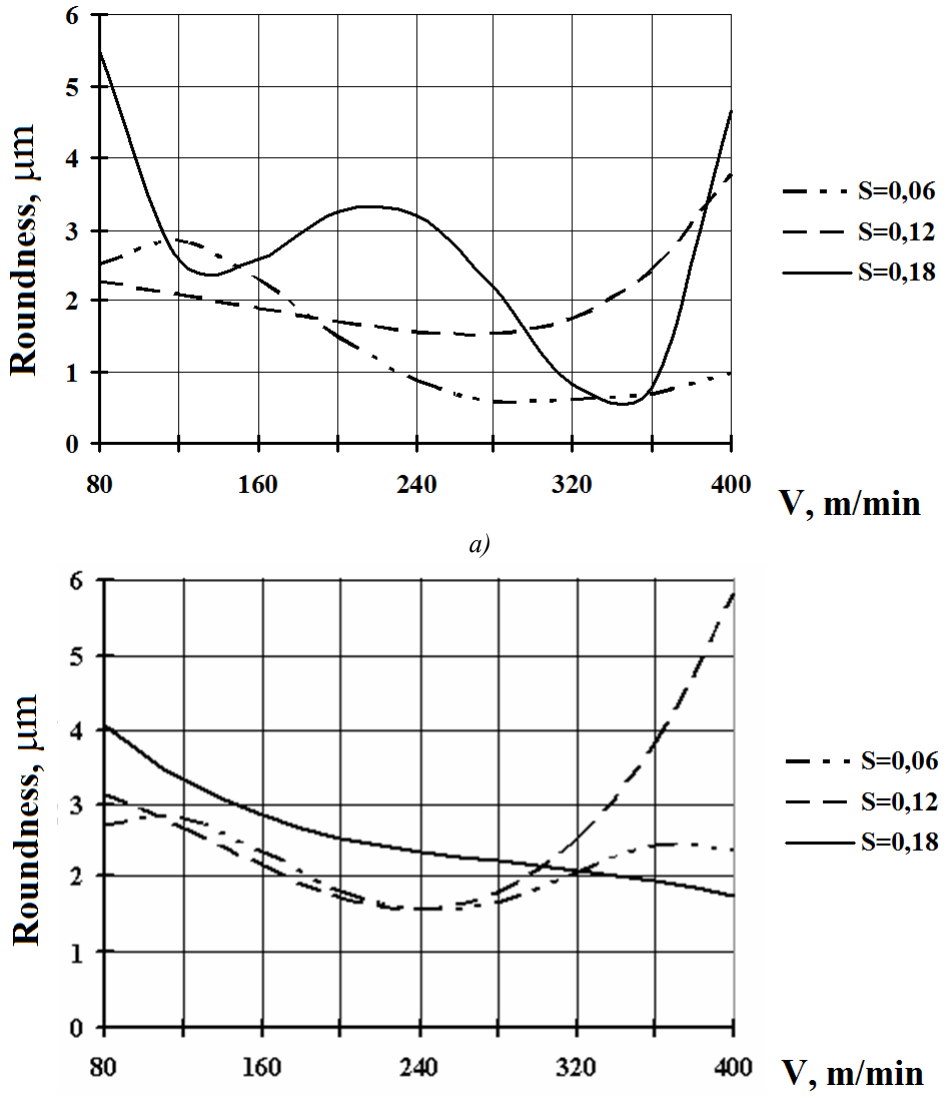

Fig. 4. Calculation results according to the plan of the experiment 5^3//36 dependence of the non-roundness of the surfaces of the parts processed on the lathe 1П420ПФ40 from cutting speed V (m/min), feed S (mm/rev) at cutting depth t = 0.5 mm (a) and t = 1.5 mm (b)

Analysis of the data shown in Fig. 4, allows you to draw the following conclusions: - lathe model 1П420ПФ40 provide high accuracy and quality of parts processing, which in some cases allows to abandon the finishing operations of grinding; - rational conditions of turning steel parts with a carbide plate cutters have been determined to obtain the smallest processing errors; - the process of shaping the surface during cutting, which is determined by the relative oscillations of the cutter and the part, is influenced by the dynamic system of the machine tool, which includes the elastic subsystems of the spindle-chuck-part and caliper group, processes in drives and the cutting process.

Conducted vibration diagnostics of the lathe model 1П420ПФ40 made it possible to determine the natural frequencies and logarithmic decrements of oscillations of the main components of the machine tool, the dynamic characteristics of which mainly depend on its dynamic quality. In addition, the main factors whose dynamic characteristics have a significant impact on the accuracy of the machine tool are determined. These include the basic components of the dynamic system of the lathe, the drive of the main movement with a belt transmission and the cutting process. The results of research of the dynamic characteristics of the machine tool were used in the development of a mathematical model of the closed dynamic system of the lathe.

References

1. Kuznecov Ju.N., Drachev O.I., Luciv I.V., Shevchenko O.V., Voloshin V.N. (2015) Dinamika stanochno-instrumental'noj osnastki dlja vysokojeffektivnoj tokarnoj obrabotki: monografija, Staryj Oskol: TNT, – 432 p.

2. Shevchenko O.V. (2011) Doslidzhennia tokarno-revolvernykh verstativ za parametramy yakosti // Prohresyvni tekhnolohii i systemy mashynobuduvannia / Mizhnarodnyi zbirnyk naukovykh prats - Donetsk: DonNTU, vyp. 42. p. 286-293.

3. Lapach S.N., Chubenko A.V., Babych P.N. (2000) Statystycheskye metody v medyko-byolohycheskykh yssledovanyia s yspolzovanyem Excel. – K.: MORYON, – 320 p.

ВИЗНАЧЕННЯ ВИХОДУ ФРАКЦІЙНОГО МАТЕРІАЛУ ПРИ РУЙНУВАННІ МАРТИТОВИХ РУД СТРУМЕНЯМИ ВОДИ В ЗАЛЕЖНОСТІ ВІД НАПРЯМУ ЇХ ЗРІЗАННЯ

Ковбик К.М.
Асистент кафедри підземної розробки родовищ корисних копалин
Криворізький національний університет

DETERMINATION OF YIELD OF FRACTIONAL MATERIAL BY DESTRUCTION OF MARTITE ORE BY WATER JETS DEPENDING ON THE DIRECTION OF THEIR CUTTING

Kovbyk K.
Assistant of Department of Underground Mining of Mineral Deposit
Kryvyi Rih National University
DOI: 10.5281/zenodo.6825917

Анотація

Впровадження технологій гідромеханізації гірських робіт в умовах Криворізького залізорудного басейну - є актуальним питанням. Розробки покладів обводнених багатих залізних руд класичними способами які непристосовані для цього, супроводжуються великою кількістю втрат рудної сировини, або неможливості відпрацювання покладу. Використання технології свердловинного гідро видобування корисних копалин дозволить використовувати потоки води з дренажних свердловин або зумпфу для безпечного без вибухового руйнування масиву. Метою статті є - висвітлення результатів виконаних дослідів з руйнування мартитових руд методом свердловинного гідро руйнування по їх нашаруванню. Встановлення залежностей виходу фракції руд від тиску струменя води та напряму їх зрізання.

Abstract

The introduction of mining hydro mechanization technologies in the conditions of the Krivoy Rog iron ore basin is a topical issue. The development of deposits of flooded rich iron ores by classical methods unsuitable for this is accompanied by a large number of losses of ore raw materials or the impossibility of mining the deposit. The use of borehole hydraulic mining technology will allow the use of water flows from drainage wells or a sump for the safe, non-explosive destruction of the massif. The purpose of the article is to highlight the results of the experiments performed on the destruction of martite ores by the method of borehole hydraulic destruction by their stratification. Determination of the dependences of the output of the ore fraction on the pressure of the water jet and the direction of their cutting.

Ключові слова: руйнування руд, обводнення родовищ, гідровиймання, руйнування струменями води, шари породи, гідромеханізація, підземна розробка.

Keywords: Ore destruction, flooding of deposits, hydraulic mining, destruction by water jets, rock layers hydromechanization, underground development.

Гірничо-технологічні властивості основних різновидів природно-багатих залізних руд Криворізького басейну, як об'єктів свердловинної відбійки вибухом, для різних глибин вивчені досить повно. Гірничо-технологічні властивості частини мартитових руд вимивання з вмістом заліза більше 64% і пористістю більше 20%, як об'єктів свердловиної гідромоніторної відбійки, особливо для умов глибоких горизонтів шахт Кривбасу, в достатньому обсязі не вивчались.

Аналіз досліджень і публікацій. Для основних типів руд і порід залізорудних родовищ України і особливо Кривбасу раніше проведені ґрунтовні експериментальні вимірювання та аналітичні узагальнення основного комплексу фізико-механічних властивостей, що використовуються в розрахунках традиційних гірничо-технологічних і гірничо-геомеханічних процесів розробки [1, 2]. Встановлено, що в найбільш поширених мартитових рудах між мінералогічними складами і масовим вмістом заліза, а також основними характеристиками щільністних і деформаційно-міцнісних властивостей спостерігаються закономірні зв'язки, що дозволяють будувати прогнозні кореляційні залежності по одному з відомих параметрів. Тому деяка частина покладів багатих залізних руд є перспективною для впровадження технологій гідровиймання. Визначено що в діапазоні 4 <η <20% залежність межі міцності зразків мартитових руд на одновісний [σсж] від пористості η має обернено пропорційний характер, а залежність між вмістом заліза Fe і пористістю η має в діапазоні 4 <η <20% лінійний характер [1, 2]. Дослідження також показали, що для руд цього типу відзначається певна закономірність у зміні щільності, пористості, міцністно-деформаційних характеристик як з глибиною, так і по простяганню. Відзначається, що найбільш низька міцність при будь-яких видах навантаження властива високо пористими мартитовими рудами з гранобластовою мікрогранульованою структурою, що є наслідком гіпергенних процесів дезінтеграції і вилуговування кварцу. При цьому вплив пористості в діапазоні 20-40% і вище на показники міцності і вміст заліза в мартитових рудах. Разом з тим практика показує, що при гідрогеологічній підготовці

горизонтів до очисної виїмки в масивах багатих вилужених мартитових руд, вміст заліза досягає 68-69,5%, повсюдно відзначається інтенсивний винос з дренажних і гідрогеологічних свердловин значних обсягів порошкових рудних матеріалів, що володіють при насиченні водою пливучими властивостями. Цей факт є принциповою підставою для проведення досліджень щодо примусового гідравлічного руйнування і переміщення по свердловинах гідросуміші руд зазначеного типу. Дослідження [3, 4] показали, що характер зміни гідродинамічних параметрів гідромоніторних струменів в значній мірі залежить від початкового тиску води на виході з насоса і діаметра вихідного отвору насадки. Найбільш простою і оптимальниою, з точки зору гідродинаміки потоку, конструкцією підвідного каналу є пряма труба довжиною, що перевищує 50 діаметрів її внутрішнього каналу та закінчується насадкою конструкції Никонова-Шавловського [5].

Постановка задачі. Експериментально визначити особливості механізму руйнування мартитових руд струменями води. Визначити кількісні та якісний вихід фракції при такому руйнуванні масиву від руйнування по нашаруванню, та в хрест.

Викладення матеріалу та результати. Проведення дослідно-методичних і дослідно-експериментальних досліджень по свердловинній відбійці залізних руд були розроблені і виготовлені переносна малогабаритна експериментальна гідромоніторна установка, а також стаціонарний і пересувний гідродовидобувні комплекси, що включають досвідчені гідромоніторної установки, що з'єднуються як з шахтними водонапірними магістралями, так і з напірними водяними насосами [6-8].

На рис. 1.1 представлена технологічна схема проведення дослідження переносною гідромоніторною установкою в гірських виробках шахт. Свердловинний (шпуровий) гідромонітор, включає: стовбур з металевих труб довжиною 2м, зовнішнім діаметром 36мм і внутрішнім діаметром 24 мм; гідромоніторну головку довжиною 60мм і діаметром 40мм з прямоточним або бічним розміщенням замінних струї формуючих насадок; важелі ручного управління для поздовжнього і обертального переміщення струменя в свердловині. Як генератор тиску води використовується шестерний високо напірний насос НШ-50, що забезпечує постійну витрату технологічної води Q = 3,0 м3/год і розвиває тиск P0 = 12 МПа, контрольоване при різних початкових діаметрах струменя d0 = 3-5 мм манометром зі шкалою 0-25 МПа. Приводним двигуном насоса служить асинхронний електродвигун потужністю 3,6кВт і зі швидкістю обертання валу 1450 об/хв.

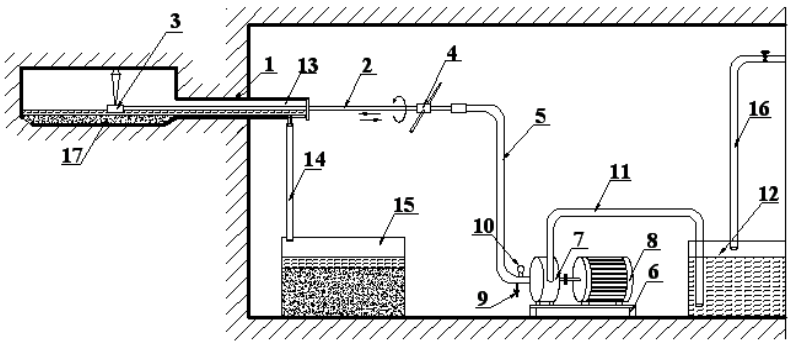

Рис. 1.1. Технологічна схема проведення дослідно-методичних досліджень по руйнуванню залізорудного масиву через свердловину переносної гідромоніторної установки: 1-свердловина; 2-ствол гідромонітора; 3 - головка з гідро насадкою; 4-важелі управління; 5-рукав високого тиску; 6-станина генератора тиску води; 7-насос; 8-електродвигун; 9-дросель; 10-манометр; 11-водовід; 12-ємність для води; 13-пульповоди; 14 – пульпо відводів; 15-ємність для збору продуктів руйнування (пульпи); 16 - трубопровід; 17 - гідросуміш.

Комплекс включає свердловинний гідромоніторний агрегат, систему доставки гідросуміші від гирла видобувних свердловин до місця зневоднення, вузол розвантаження (навантаження) і зневоднення гідросуміші, блок підготовки напірної технологічної води і систему оборотного водопостачання.

Отриманій результати гранулометричного складу руд зведені в таблицю 1.1.

Таблиця 1.1

Гранулометричний склад проб руди

Клас крупності, мм	Вихід класу, %			
	Тиск струменя води, МПа			
	1,5	2,5	3,5	4,0
+1,0	18,2	28,9	30,0	30,3
-1,0 +0,5	21,8	14,2	24,3	26,0
-0,5 +0,25	15,2	19,7	13,7	16,2
-0,25 +0,1	22,3	24,4	23,8	23,0
-0,1	22,5	12,8	8,2	4,5
Середній діаметр шматка, мм	0,544	0,663	0,729	0,753

Процентний вміст виходу фракцій руди класу -0,1 +0,0 в залежності від тиску водяних струменів і орієнтації щодо шаруватості рудного масиву представлено на рис. 1.2

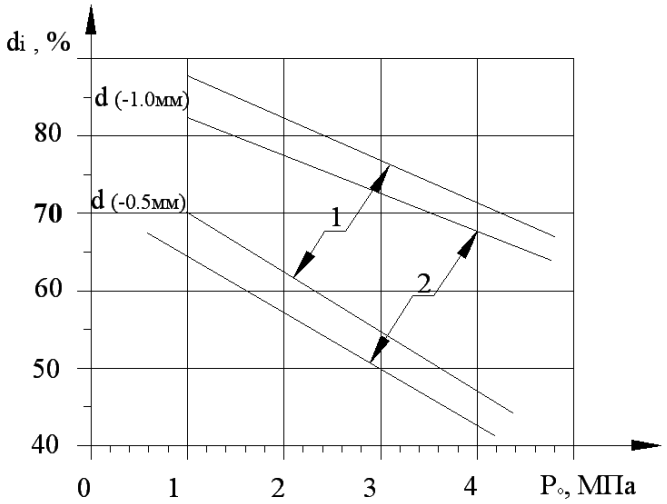

Рис. 1.2. Залежності виходу руди класів (-0,5 + 0,0мм) і (-1,0 + 0,0мм) від початкового тиску водяних струменів, спрямованих по шаруватості - 1 і в хрест шаруватості - 2 рудних масивів

Висновки та напрямок подальших досліджень. Вперше встановлена залежність виходу фракції руд при їх відбиванні за допомогою методу гідроруйнування від розташування слоїв породи. По шаруватості і в хрест. Виявлено:

1. Величина виходу фракції -0.5мм до 0.0 мм залежить від тиску. Чим вище тиск тим дрібніше стає фракція.
2. Величина виходу фракції залежить від слоїстості порід, зрізання в хрест дає більш крупну фракцію, ніж зрізання вздовж шарів.

Як подальший розвиток планується й надалі досліджувати міцністні, деформаційні, та фізико-механічних властивості мартитових руд при їх руйнуванні струменями води. Розробка технології впровадження методу свердловинного гідроруйнуванян масив.

Список літератури

1. Глушко В.Т., Борисенко В.Г. Инженерно - геологические особенности железорудных месторождений - М.: Недра, 1978.-253с.
2. Балута А.М., Ривкин И.Д., Тохтуев Г.В. Ожидаемые горно-геологические условия и формы проявления горного давления на глубоких горизонтах Криворожского бассейна, - К.: Наукова думка, 1972.- 46с.
3. Исследование гидравлического разрушения угля. М.: Наука, 1968.- 183с.
4. Никонов Г.П., Кузьмич И.А., Гольдин Ю.А. Разрушение горных пород струями воды высокого давления. - М.: Недра, 1986. - 143с.
5. Шавловский С.С. Основы динамики струи при разрушении горного массива. - М.: Недра, 1979. - 173 с.
6. Исследование и разработка аванпроекта скважинной гидротехнологии для условий шахт Кривбасса: Отчет о НИР (закл.) / КГРИ; рук. В.М. Тарасютин, №1-902-92. – Кривой Рог, 1992. – 57с.
7. Исследование возможности получения суперконцентрата в условиях шахты «Юбилейная» рудника «Сухая Балка»: Отчет о НИР (закл.) / АГНУ; рук. В.М. Тарасютин, № 1-И-98. – Кривой Рог, 1993. – 49с.
8. Экспериментальные исследования и разработка эффективных способов скважинной гидродезинтеграции и обогащения рыхлых разновидностей окисленных руд шахт ПО «Кривбассруда»: Отчет о НИР (закл.) / КТУ; рук. В.М. Тарасютин № 1-74-93. – Кривой Рог, 1996. – 102с.

СОВРЕМЕННЫЕ МЕТОДЫ УМЕНЬШЕНИЯ ПРОИЗВОДСТВЕННОГО ТРАВМАТИЗМА СТРОИТЕЛЬНОЙ ОТРАСЛИ

Петросова Л.И.
к.т.н., доц.
Каримбаев Р.К.
магистр
Абдумаликова О.
студентка
Ташкентский государственный технический университет

MODERN METHODS OF REDUCING OCCUPATIONAL INJURIES IN THE CONSTRUCTION INDUSTRY

Petrosova L.,
Candidate of Technical Sciences, Assoc.
Karimbayev R.,
Master's degree
Abdumalikova O.
student
Tashkent State Technical University
DOI: 10.5281/zenodo.6825926

Аннотация

В статье рассмотрены причины производственного травматизма, определены опасные факторы риска в строительной отрасли. Предложены мероприятия по повышению культуры безопасности рабочих. Разработаны анкеты для работников, с целью выявления ответственности сотрудников.

Abstract

The article examines the causes of occupational injuries, identifies dangerous risk factors in the construction industry. Measures to improve the safety culture of workers are proposed. Questionnaires have been developed for employees in order to identify the responsibility of employees.

Ключевые слова: строительная отрасль, травматизм, опасные факторы, риск.

Keywords: construction industry, injuries, dangerous factors, risk.

В настоящее время в республике Узбекистан активно развивается строительная отрасль. Список строительных компаний и организаций в Узбекистане ежегодно увеличивается (рис.1). Для определения надежности строительной компании используются критерии обеспечивающие высокое качество строительства, такие как квалифицированные специалисты, финансовые показатели, качество выполненных работ, опыт работы, техническая база и конкурентоспособность.

Рис. 1. Рост строительных компаний

На строительных площадках занято большое число рабочих различных специальностей, каждая из которых подвержена производственному травматизму. Анализ несчастных случаев в строительных компаниях показал, что наибольший травматизм получают рабочие таких специальностей как водители – 28 %; электросварщики – 14 %; слесари – 10 % и прочие – 21 %, менее плотники, монтажники , машинисты – 7 %. (рис.2.)

Работа монтажников и электросварщиков характеризуется постоянной изменяемостью относительно монтируемого элемента. Большая часть несчастных случаев происходит в результате паде-

ния людей с высоты, поэтому строителям необходимы современные средства техники безопасности, устраняющие производственный травматизм и обеспечивающие санитарно-гигиенические условия, предупреждающие возникновение профзаболеваний.

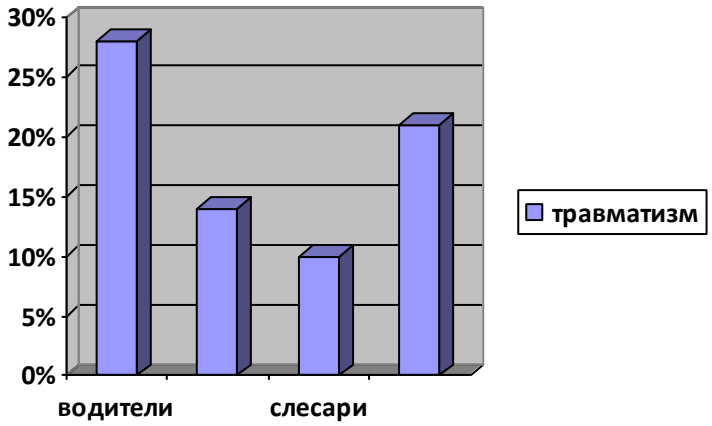

Рис. 2. Диаграмма несчастных случаев

Работники, выполняющие работу на высоте 5 м и более от поверхности грунта, перекрытия, рабочего настила, должны обязательно иметь предохранительный пояс [1]. Согласно наблюдениям, известно, что производственные травмы во многих случаях связаны с организационными, техническими и медицинскими причинами: плохая организация труда, нарушение трудовой и производственной дисциплины, недостаточная квалификация и подготовка работников по охране труда, высокая степень износа строительной техники и оборудования, а также отсутствие эффективных средств коллективной и индивидуальной защиты работников.

В Республики Узбекистан принята стратегия по модернизации, ускоренного и инновационного развития строительной отрасли на 2021 — 2025 годы [1]. Стратегия предусматривает обеспечение внедрения на объектах строительной отрасли системы управления охраной труда в соответствии с системой стандартов безопасности труда, международного стандарта ISO:45001, включающей выявление потенциальных угроз, оценку, контроль и управление профессиональными рисками на строительных площадках, привлечение ведущих зарубежных специалистов для проведения мероприятий по повышению квалификации специалистов (лекций, семинаров, тренингов и пр.). Внедрение системы периодической аттестации сотрудников уполномоченных органов и организаций, оказывающих государственные услуги и осуществляющих разрешительные процедуры, экспертизу проектной документации, а также контроль в сфере строительства.

С целью реализации стратегии республики научные исследователи кафедры «Безопасность жизнедеятельности» Ташкентского государственного технического университета тесно сотрудничают со специалистами строительных компаний. Проводят обучение, научные семинары и совместные мастер-классы по охране труда.

Авторами статьи разработан метод анкетирования рабочих с целью определения факторов риска несчастного случая. Результаты анкетирования показали, что большинство рабочих не понимает своей ответственности перед опасностями, ошибочно считая, что за травматизм рабочих отвечает руководство компании, а не он сам. Это подтверждает отсутствие культуры безопасности рабочих и мотивации к добросовестной работе.

Одной из методик уменьшения травматизма является внедрение системы инвестиций в кадры, мотивации посредством участия работников в вопросах соблюдения требований безопасности и гигиены на рабочих местах. Так например, в компании «ENTER Engineering» разработан комплекс мотивационных мероприятий, которые внедрены в практику проведения конкурсов по номинациям : «Лучший специалист в области охраны труда»,

«Лучший работник, не получивший травматизм во время работы» и др. Для проведения инновационных конкурсов привлекаются ведущие IT-специалисты.

Рис. 3. Празднование в компании «ENTER Engineering»

Результаты конкурса подводятся ежегодно с обязательным вручением в Международный день охраны труда – 28 апреля почетных грамот, нагрудных знаков, премий, сувениров, льготных путевок в санатории. На рис.3 показан завершающий этап проведения празднования дня охраны труда.

Таким образом, хорошая организация труда – это основа предотвращения несчастных случаев на производстве. Риск несчастного случая можно значительно уменьшить, если содержать пути прохода, рабочие площадки и лестницы в надлежащем порядке. Опасности падений можно предотвратить исправными рабочими и пешеходными площадками и защитными конструкциями. Освещение должно быть в порядке. Риски несчастных случаев, связанные с использованием станков и других технических устройств, можно заранее предотвратить лишь одной исправностью техники, соответствующей всем требованиям, а также ремонтом старой техники. К рискам несчастного случая часто относится умышленное подвергание себя опасности, а потому к управлению рисками относится и контроль, и личный пример активных руководителей. [3]. Недостаток культуры охраны труда, которая обязана проникать во всю производственную деятельность, не только приводит к увеличению рисков несчастных случаев, но и негативно сказывается на экономической эффективности производства, его стабильного развития, а в конечном результате и на увеличении или уменьшении размера оклада работника. Предупреждение производственного травматизма – было и остается комплексной проблемой, требующей усиленного внимания специалистов разного профиля.

С целью уменьшения факторов риска несчастных случаев, необходимо также повысить классификацию рабочих, усилить надзор, использовать работников по специальности.

Список литературы

1. Стратегия по модернизации, ускоренного и инновационного развития строительной отрасли Республики Узбекистан на 2021 — 2025 годы. УП-№ 6119 от 27 ноября 2020.

2. Санитарные правила и гигиенические требования к организации строительного производства и строительных работ. СанПиН № 0289-10. Ташкент -2010.

3. Волков И.И., Вахрушева О.М. Снижение уровня аварийности и травматизма в строительстве. Научные труды КубГТУ, № 3, 2019.

4. Петросова Л.И., Каримбоев Р.К., Озотбекова М. Охрана труда в промышленном секторе. Международный педагогический журнал «Наука 21 века». Часть 66. ISSN 2542-2367. Красноярск. Февраль. 2022, С.34-36.

5. Муртонен М. Оценка рисков на рабочем месте – практическое пособие. Серия «Охрана труда»: Международный опыт. Выпуск 1. Опыт Финляндии. МОТ, 2007.

6. Макаров П.В. Методические указания по оценке уровня профессионального риска Н. Новгород: ННГАСУ, 2013. – 40 с.

7. Плошкин, В.В. Профессиональные риски в строительстве: учебное пособие / В.В. Плошкин // М.-Берлин: Директ-Медиа, 2016. - 371с.

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