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Articles are published in Uzbek, Russian, and English, ensuring a wide-reaching audience and fostering cross-cultural academic exchange. As a beacon of academic excellence, the "Journal of Transport" continues to serve as a vital conduit for knowledge dissemination, collaboration, and innovation in the transport sector and related fields.

Analysis of experimental research results on the causes of injuries among train conductors

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Abstract: This article focuses on studying the causes of injuries among train conductors by analyzing objective and subjective factors. Objective factors include poor workplace lighting, low-quality protective clothing and footwear, working conditions, and meteorological factors. Subjective factors involve negligence, fatigue, and insufficient physical performance. According to the survey results, the primary causes of injuries are slippery stairs, uncomfortable protective clothing and footwear, as well as fatigue at the end of shifts. Most accidents occur while dismounting from moving railcars or using stairs. The research findings emphasize the need to enhance the physical and mental preparedness of train conductors, improve the quality of protective equipment, and upgrade technical tools. Additionally, it is recommended to develop methods for assessing professional suitability and reducing risk factors to ensure safety.

Keywords: train conductors, causes of injuries, objective factors, subjective factors, occupational safety, protective clothing, technical tools, physical performance, mental stability, professional suitability, accidents

Poyezd tuzuvchilarining jarohatlanish sabablarini o'rganishga oid eksperimental tadqiqotlar natijalarining tahlili

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Annotatsiya: Ushbu maqolada poyezd tuzuvchilarining jarohatlanish sabablarini o'rganishga qaratilgan bo'lib, obyektiv va subyektiv omillarni tahlil qiladi. Obyektiv omillarga ish joylarining yomon yoritilishi, maxsus kiyim-bosh va poyabzal sifatsizligi, ish sharoitlari va meteorologik holatlar kiradi. Subyektiv sabablar esa ehtiyotsizlik, charchoq va harakat sifatlarining yetishmasligini o'z ichiga oladi. So'rovnoma natijalariga ko'ra, jarohatlarning asosiy sabablari zinapoyalarning silliqqligi, maxsus kiyim va poyabzalning qulay emasligi, shuningdek, smena oxiridagi charchoqdir. Baxtsiz hodisalarning ko'pchiligi harakatlanayotgan vagondan tushish va zinapoyalardan foydalanish jarayonida yuzaga keladi. Tadqiqot xulosalari poyezd tuzuvchilarining jismoniy va asab-ruhiy tayyorgarligini oshirish, maxsus himoya vositalarining sifatini yaxshilash hamda texnik vositalarni takomillashtirish zarurligini ta'kidlaydi. Shu bilan birga, xavfsizlikni ta'minlash uchun kasbiy muvofiqlikni baholash va xavf omillarini kamaytirishga yo'naltirilgan usullar ishlab chiqish taklif etiladi.

Kalit so'zlar: poyezd tuzuvchilar, jarohatlanish sabablari, obyektiv omillar, subyektiv omillar, mehnat xavfsizligi, maxsus kiyim-bosh, texnik vositalar, harakat sifati, asab-ruhiy barqarorlik, kasbiy muvofiqlik, baxtsiz hodisalar

1. Kirish

Ma'lumki, poyezd tuzuvchilarining jarohatlanish sabablari shartli ravishda obyektiv va subyektiv mezonlarga bo'linadi. Obyektiv sabablar: ish joyidagi kuchli shovqinlar, poyezd tuzuvchining xavfsiz mehnat usullari, bajaradigan ishi, malakasi va sog'lig'i o'rtasidagi nomuvofiqlik, murakkab va xavfli operatsiyalarni ish boshqaruvchi ishtirokisiz bajarish, mehnat intizomi, maxsus kiyim-bosh, poyabzal va shaxsiy himoya vositalarining sifatsizligi, mehnat va dam olish rejimining buzilishi, ish joylari va stansiya yo'llarining yetarli darajada va oqilona yoritilmaganligi, noqulay meteorologik sharoitlar (past

harorat, shamol, yog'ingarchilik va boshqalar), xavf haqida ogohlantiruvchi signallarni anglashga xalal beruvchi shovqin, qisqa muddatli mehnat tig'izligi, dam olish xonalarining yo'qligi yoki u yerdagi qoniqarsiz sharoitlar. Subyektiv sabablar: ehtiyotsizlik, poyezd tuzuvchilarining qoniqarsiz harakat sifati (mushak kuchi, harakat tezligi, chaqqonlik, egiluvchanlik va chidamlilik), turli fobiyalarning mavjudligi, charchoq, noqulaylik [1-4]. Odatda, obyektiv sabablarning mavjudligi, ish jarayonining o'zgaruvchanligi sharoitida poyezd tuzuvchilaridan tezkor qaror qabul qilishni talab qiladi. Poyezd tuzuvchisining jismoniy va ruhiy tayyorgarligi o'rtasida nomuvofiqlik bo'lsa, mehnat faoliyatida xavfli holatlar yuzaga keladi. Inson harakat sifatlarining yetishmasligi sababli xavfli hodisalar vujudga kelishi mumkin, natijada ishlab chiqarish

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bilan bog'liq turli jarohatlarga olib keluvchi baxtsiz hodisalar ehtimoli ortadi.

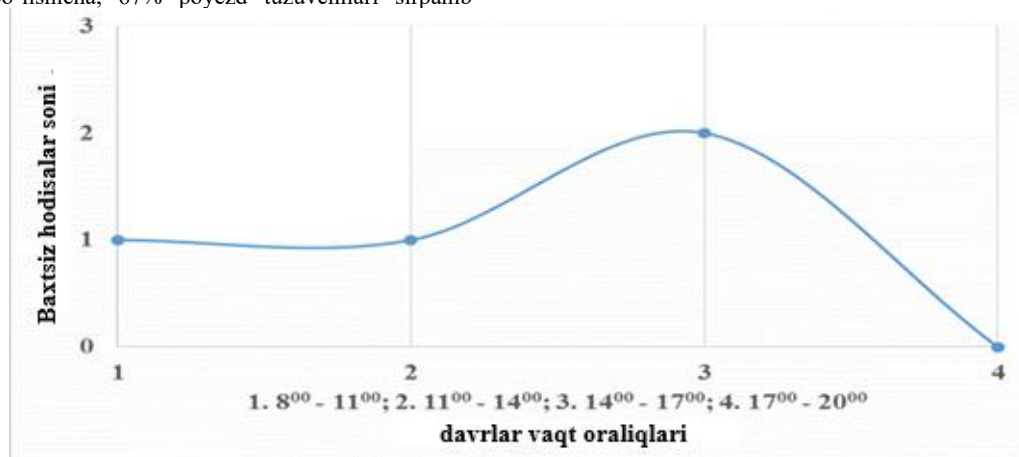
2. Tadqiqot metodologiyasi

Poyezd tuzuvchilari o'rtasidagi jarohatlanish sabablarini o'rganish maqsadida "Toshkent mintaqaviy temir yo'l uzeli" UK stansiyalari poyezd tuzuvchilari o'rtasida so'rov o'tkazildi.

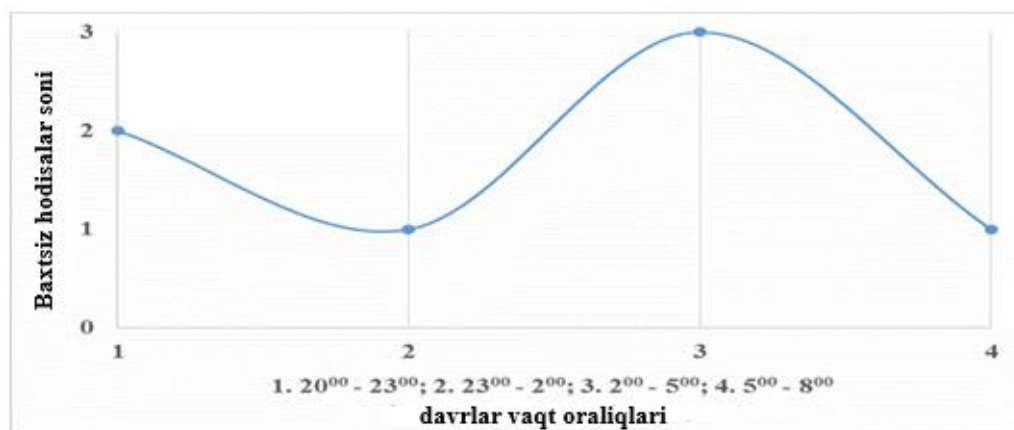
Olingan natijalar tahlili shuni ko'rsatadiki, 5 yil va undan ortiq ish tajribasiga ega bo'lgan poyezd tuzuvchilarining 18 foizi turli xil jarohatlar olgan. Oyoq-qo'llarining shikastlanishi (yuqori va pastki) asosan harakatlanayotgan vagon zinapoyasidan yiqilish (30%), vagon zinapoyasiga chiqishda (25%), temir yo'lni kesib o'tishda va vagon zinapoyasidan tushishda (18%) sodir bo'lgan. Poyezd tuzuvchilari jarohatlanish sabablari sifatida zinapoyalar sirtining silliqiligi va smena so'nggidagi charchoq (50 foizdan) ko'rsatildi. So'rovnoma ishtirok etgan poyezd tuzuvchilarining asosan tizza bo'g'imi (67%), tirsak va bosh (33%) sohasi shikastlangan. Jarohatlanishlarning 25 foizi pay cho'zilishi, yuqori va pastki oyoq-qo'l suyaklarining sinishi, boshning chayqalishi va boshqalardan iboratligi ko'rsatilgan. O'rta darajadagi jarohatlanishlarda 68 foiz poyezd tuzuvchilarining 7 kundan 1 oygacha bo'lgan ish kunlarini yo'qotishiga olib kelgan. Shikastlanishning 50 foizi vagon zinapoyalari sirtining silliqiligi bilan bog'liq. Poyezd tuzuvchisining ish poyabzalini kim va qanday tanlaydi, degan savol o'rganildi. Ma'lum bo'lishicha, 67% poyezd tuzuvchilari sirpanib

ketmaslik uchun poyabzal tagligi materialini hisobga olgan holda poyabzalni tanlash kerakligini bilishmaydi. Poyezd tuzuvchilarining 67 foizi inson tanasining alohida qismlari uchun shaxsiy himoya vositalaridan foydalanmaydi (tizzalar, tirsaklar va turli shlemlar), qo'lqop materiallari metall tutqichlarga sirpanish koeffitsienti bo'yicha qo'llarni mustahkam ushlab imkonini bermaydi. Anketa so'rovnoma materiallariga ko'ra, vagon tutqichining o'lchamlari (diametri, shakli, sirt notekisligi va boshqalar) zinapoyalarga, pandusga ko'tarilish va u harakatlanayotganda inson tanasini yuk vagonlarining maxsus zinachalariga ishonchli mahkamlash uchun qulay emas. So'rovnoma ishtirokchilari poyezd tuzuvchilari poyabzallarining noqulayligi va og'ir ekanini, poyezd tuzuvchilarining 20 foizi radiotelefonlarning keraksizligini aytib, ularning fikricha ishlashga xalaqit beradi. Poyezd tuzuvchilarining 50 foizi qo'lqop materiallarini silliq deb hisoblaydi va ularning fikriga ko'ra, maxsus kiyim-bosh tezda eskiradi, poyabzal tagliklari silliq va foydalanish uchun qulay emas. So'rov natijalariga ko'ra, poyezd tuzuvchilari zinapoyalar, tutqichlar konstruksiyasini takomillashtirish, maxsus kiyim-boshlar uchun norma va talablarni ishlab chiqishni taklif qilishgan [1-4, 6-8].

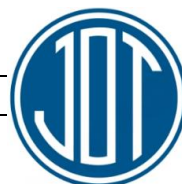
2018-2022 yillarda poyezd tuzuvchilari bilan birinchi va ikkinchi smena vaqtlari boshlanishidan tugaguniga qadar sodir bo'lgan baxtsiz hodisalar alohida tahlil qilindi. Bunda davomiyligi 12 soat bo'lgan smenalar (birinchi va ikkinchi) har biri 3 soatdan tashkil topgan 4 ta davrga ajratildi. Olingan natijalar bo'yicha chiziqli grafiklar qurildi (4.17, 4.18-rasmlarga qarang).



1-rasm. Birinchi smenaning 1, 2, 3, 4 davrlarida sodir bo'lgan baxtsiz hodisalar



2-rasm. Ikkinchi smenaning 1, 2, 3, 4 davrlarida sodir bo'lgan baxtsiz hodisalar



Grafiklar tahlilidan ko'rinib turganidek, poyezd tuzuvchilari bilan sodir bo'lgan baxtsiz hodisalar birinchi va ikkinchi smenalar vaqtlarining 1 hamda 3 davrlarida bo'lib o'tgan. Smenalar vaqtining 1 davriga ishni boshlash va adaptatsiya vaqtlari kiradi, bu vaqtlar oralig'ida poyezd tuzuvchisi tayanch-harakat apparati mushaklari faollashish jarayonini o'tadi. Ushbu soatlarda uning jismoniy harakat sifatleri (kuch, tezlik, chaqqonlik, egiluvchanlik va chidamlilik) ko'rsatkichlari yuqori darajada bo'lmaydi. Smenalarning birinchi davrida sodir bo'lgan baxtsiz hodisalar, bilvosita, poyezd tuzuvchisining jismoniy harakat sifatleri bilan bog'liq ekanligini qayd etish mumkin. Smenalarning uchinchi davri vaqtlarida sodir bo'lgan baxtsiz hodisalar poyezd tuzuvchisining jismoniy harakat hamda asab-ruhiy sifatleri talab darajasida emasligi tufayli yuzaga keladigan toliqish bilan bog'liq [5].

3. Natija

Poyezd tuzuvchilarining shikastlanish sabablarini o'rganishda smenalarning 1-4 davrlari vaqtlarida sodir bo'lgan baxtsiz hodisalar natijalari shuni ko'rsatadiki, ular harakatlanayotgan vagonidan tushayotganda yiqilishi, harakat sifatlarining rivojlanmaganligi, maxsus kiyim-bosh va poyabzal ko'rsatkichlari fizik-mexanik tavsiflarga mos kelmasligi natijasida jarohatlangan. Bundan tashqari, poyezd tuzuvchilarining shikastlanish sabablaridan yana biri asab-ruhiy sifatleri pasaytiruvchi turli xil fobiyalarga moyilligi bo'lishi mumkin. Poyezd tuzuvchilarining shikastlanish sabablarini bartaraf etish uchun ularning harakat (tezlik, kuch, chaqqonlik, egiluvchanlik va chidamlilik) va asab-ruhiy sifatleri hamda mehnat sharoitlarida kelib chiqadigan turli xil fobiyalarga moyilligini hisobga olgan holda poyezd tuzuvchilarining kasbiy muvofiqligini baholash uslubini ishlab chiqish lozim. Poyezd tuzuvchilarining kasbiy muvofiqligini baholash uslubini ishlab chiqishda ularning jismoniy mehnat faoliyatida bajaradigan ishlarida hosil bo'ladigan mexanik quvvat, bevosita harakat va asab-ruhiy sifatlariga bog'liq. Mexanik quvvatning yuqori bo'lishi va fobiyalarga moyillikning yo'qligi, ishlab chiqarishdagi xavfli holatlar va vaziyatlarga olib kelishini bartaraf etish imkonini berib, baxtsiz hodisalar ehtimolini sezilarli darajada kamaytiradi [5-8].

4. Xulosa

Tadqiqot natijalari poyezd tuzuvchilari orasida jarohatlanishning asosiy sabablari texnik va inson omillaridan kelib chiqishini ko'rsatdi. Ish joyidagi yomon yoritilish, maxsus kiyim-bosh va poyabzalning sifatisizligi, zinapoyalarning silliqiligi kabi texnik kamchiliklar jarohatlanish holatlariga sezilarli ta'sir ko'rsatmoqda. Shuningdek, inson omillari – ehtiyotsizlik, charchoq, jismoniy va asab-ruhiy sifatlarining yetishmasligi jarohatlanish xavfini oshiradi.

Baxtsiz hodisalarni kamaytirish uchun bir qator choralar taklif etiladi:

- Poyezd tuzuvchilarining jismoniy va ruhiy tayyorgarligini oshirish uchun trening va mashg'ulotlar tashkil etish.

- Maxsus kiyim-bosh va poyabzal sifatini yaxshilash, ularni xavfsizlik talablariga mos ravishda modernizatsiya qilish.
- Ish joylarida yoritish tizimini takomillashtirish va zinapoya konstruksiyalarini xavfsiz qilish.
- Xodimlarning kasbiy muvofiqligini baholash va xavf omillariga qarshi choralarni ishlab chiqish.

Ushbu chora-tadbirlar ishlab chiqarishdagi xavfli holatlar sonini kamaytirish va poyezd tuzuvchilarining mehnat sharoitlarini yaxshilashga xizmat qiladi.

Foydalangan adabiyotlar / References

- [1] Сулайманов С., Талипов М.М. РЕЗУЛЬТАТЫ ИЗУЧЕНИЯ ПРИЧИН ТРАВМАТИЗМА СОСТАВИТЕЛЕЙ ПОЕЗДОВ //Universum: технические науки. – 2022. – №. 5-1 (98). – С. 18-25.
- [2] Сулайманов, С. К совершенствованию методику оценки профессиональной пригодности составителей поездов с учетом различных фобий индивидов / С. Сулайманов, М.М. Талипов // Перспективы развития науки в современном мире : Сборник трудов по материалам XII Всероссийского конкурса научно-исследовательских работ. В 2 частях, Уфа, 20 февраля 2023 года. Том Часть 1. – Уфа: Общество с ограниченной ответственностью "Научно-издательский центр "Вестник науки", 2023. – С. 106-116.
- [3] «Mehnatni muhofaza qilish to'g'risida»gi 22.09.2016 yil O'RQ-410-son O'zbekiston Respublikasi Qonuni.
- [4] Охрана труда. Определение эффективности мероприятий по улучшению условий труда : учеб.-метод. пособие по одноименному курсу для студентов всех специальностей / сост. И.Т. Ермак [и др.]. – Мн. : БГТУ. – 2005. – С. 4-17.
- [5] И. Герман, Физика организма человека. Пер. с англ.: Научное издание / И. Герман Долгопрудный: Издательский Дом «Интеллект», 2011 – 995 – 363-367 с.
- [6] Андрей Гронский О тревоге, страхе и фобиях //Статьи/Эмоции в жизни// <https://www.b17.ru/article/74984/>.
- [7] Попов Г.И. Биомеханика двигательной деятельности: учеб. для студ. учреждений высш. проф. образования / Г.И. Попов, А.В. Самсонова. – 3-е изд., стер. – М.: Издательский центр «Академия», 2014.
- [8] D.A. Winter: Biomechanics and Motor Control of Human Movement, 3rd edn (Wiley, New York 2005) 383-141-p.

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