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Teachers' Perceptions of Self-Efficacy and Awareness Levels in Occupational Health and Safety: A Local Study

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***Abstract*—** *This study was conducted to determine the awareness levels of teachers working at Iğdır Vocational and Technical Anatolian High School regarding occupational health and safety (OHS) and to develop policy recommendations based on the findings. The study was designed using a quantitative research method and a descriptive survey model, with the population consisting of all teachers working at the school during the 2024–2025 academic year. The findings revealed that teachers' OSH awareness levels were generally high, but there were significant knowledge gaps in areas such as technical infrastructure, legal regulations, and disaster preparedness. While no significant differences were found in terms of gender, educational background, and length of service, the age variable had a significant effect on awareness levels. Additionally, the status of receiving firefighting training showed a significant relationship with gender. It was determined that the vast majority of participants (87.5%) had previously received OSH training; however, the low rates of firefighting (45%) and search-and-rescue (32.5%) training were notable. While the use of personal protective equipment and occupational risk awareness was above 80%, knowledge levels regarding structural safety elements (fire detection systems, water tank maintenance, lightning rods, etc.) remained irregular and insufficient. While teachers have a high level of individual safety awareness, it has been determined that this awareness is not integrated with the school's technical infrastructure and administrative processes. The study recommends strengthening regulatory training, increasing information about technical infrastructure, regularizing disaster drills, integrating OSH information into the curriculum, reinforcing PPE usage habits, and improving management-teacher communication.*

I. INTRODUCTION

Occupational health and safety (OHS) is a multidisciplinary field that aims to protect workers from all hazards they may encounter in the workplace. Today, OHS practices are of critical importance not only in the industrial sector but also in service sectors such as educational institutions. It is essential to be aware of the potential exposure of both teachers and students to physical, chemical, biological, and ergonomic risks in institutions where educational activities are conducted [1]. In this context, Vocational and Technical Anatolian High Schools, due to their workshops, laboratories, and practical course content, contain a higher level of risk factors compared to other types of schools [2]. In educational institutions, OSH must be addressed holistically, not only

in terms of physical safety but also in terms of institutional culture, teachers' awareness levels, and managerial planning processes [3]. Awareness analyses conducted within this framework contribute significantly to controlling existing risks by determining teachers' knowledge levels. Measuring the awareness levels of teachers working in Vocational and Technical Anatolian High Schools regarding OSH is of critical importance both for evaluating the current safety culture and for shaping future education policies [4]. The occupational health and safety regulations published by the Ministry of National Education in Turkey define the duties and responsibilities of teachers and administrators in detail. However, the effective implementation of these regulations largely depends on teachers' knowledge, attitudes, and behavioral tendencies in the field of occupational health and safety [5]. In Iğdır, which is among the environmentally and socioeconomically disadvantaged regions, identifying teachers' competence in this area could provide valuable contributions to awareness-raising efforts at the national level. In addition, OSH awareness not only serves to protect teachers' own health and safety but also contributes to the sustainability of a safe learning environment for students [6]. Therefore, it is necessary to reveal the levels of awareness in question through local-scale scientific research.

A large portion of academic studies in the field of occupational health and safety (OHS) focus on the industrial sector, and the relative neglect of risks encountered in educational institutions presents a significant gap. However, a significant portion of workplace accidents in schools are preventable, and these accidents are often caused by teachers' lack of knowledge or inadequate risk perception [7]. Reports examining workplace accidents reveal that falls, collisions, and ergonomic issues faced by teachers are among the serious risk factors (SGK, 2022). This situation highlights the necessity of including OSH in teacher training programs. Indeed, providing pre-service teacher candidates with education on occupational health and safety issues can enable them to adopt a more conscious and preventive approach when they begin their careers [8]. Determining the awareness levels of current teachers is important for increasing the scope and effectiveness of in-service training programs [9].

The focus of the study is the Vocational and Technical Anatolian High School in Iğdır, which is located on Turkey's eastern border and has a unique demographic structure. Vocational and Technical Anatolian High Schools in the city constitute an important component of regional education in terms of both student and teacher numbers; however, physical infrastructure deficiencies and the absence of an established OSH culture increase the potential risk level [10]. In particular, the lack of maintenance of equipment used in workshops and deficiencies in fire prevention systems necessitate that teachers act consciously and cautiously in terms of OSH. In this context, determining the level of OSH awareness among teachers at the local level will provide a scientific basis for planning at the provincial level; it will also create a reference dataset for similar studies to be conducted in other provinces.

The main objective of this study is to determine the awareness levels of teachers working at Iğdır Vocational and Technical Anatolian High Schools regarding occupational health and safety (OHS) and to develop policy recommendations based on the findings. The questionnaire prepared for this purpose focuses on measuring teachers' knowledge, attitudes, behaviors, and perceptions regarding OHS and current practices. It is anticipated that the data obtained from the research will be of a quality that can be used in teacher training processes and contribute to school administrations' planning in the field of OSH [11]. Additionally, the data will enable the identification of areas where teachers demonstrate deficiencies, serving as an important reference source for the development of in-service training program content.

Although the study was conducted at the local level, it has the potential to provide generalizable findings for educational institutions throughout Turkey. In this respect, it contributes to the literature and develops solution-oriented recommendations in the field of application. The level of OSH awareness is directly related to teachers' capacity to manage the risks they may encounter in educational settings. The knowledge, attitudes, and behaviors of teachers working in Vocational and Technical Anatolian High Schools in this area contribute to the establishment of a safe educational environment at both the individual and institutional levels [12].

Measuring this level of awareness using scientific methods will contribute to the development of more effective and targeted education policies. This study, conducted in the province of Iğdır, will provide a framework that can contribute not only to the identification of local issues but also to the development of national OSH strategies. The policy recommendations to be developed as a result of the research require a multi-stakeholder approach that includes not only teachers but also school administrators and policymakers; this holistic perspective constitutes an important step in the process of creating safe school environments.

II. MATERIAL AND METHOD

Research Model

This study is a quantitative research-based study conducted to determine the awareness levels of teachers working at Iğdır Vocational and Technical Anatolian High School regarding occupational health and safety (OHS). The descriptive survey model was used in the study to present the current situation without any intervention [13]. This model is considered an appropriate method for assessing awareness levels because it allows data to be collected from large groups of participants and analyzed systematically [14].

Population and Sample

The population of the study consists of all teachers working at Iğdır Vocational and Technical Anatolian High School as of the 2024-2025 academic year. Sixty-eight teachers were identified using purposive sampling, but valid survey responses were obtained from 40 teachers. Purposive sampling ensures that data suitable for the purpose of the research is obtained by selecting individuals with specific criteria. The criteria for inclusion in the sample are as follows: teaching directly in technical and vocational fields, having at least one year of professional experience, and having a basic level of knowledge about OSH. Additionally, demographic variables such as gender, age group, educational level, and years of service were considered in the analysis process to identify potential relationships between individual characteristics and OSH perceptions.

Data Collection Tool

As the data collection tool, the Occupational Health and Safety Self-Efficacy Scale, developed and reliability-tested by Taşdemir and Gür, [15] was used. The questionnaire consisted of two sections. The first section included nine questions aimed at obtaining the demographic information of the participants, while the second section comprised 30 statements designed to measure teachers' self-efficacy perceptions regarding occupational health and safety (OHS). The items in the second section were prepared in a 5-point Likert scale format (1 = Strongly Disagree, 5 = Strongly Agree). The content of the questions was developed by taking into account scales available in the OHS literature and the national legislation.

The survey was administered online via Google Forms and completed following a data collection process that lasted approximately two weeks. To ensure content validity, the opinions of three academics who are experts in educational administration and occupational health and safety (OHS) were consulted. After conducting a pilot study to test language clarity and technical functionality, necessary revisions were made, and the final version of the questionnaire was prepared.

Data Analysis

The statistical analysis of the data obtained within the scope of the study was carried out using the SPSS software package. During the analysis process, data integrity, missing values, and outliers were first checked. As part of the descriptive statistics, the demographic characteristics of the participants were summarized through frequency and percentage distributions, and the responses to the scale items were evaluated using arithmetic means and standard deviation values. For comparisons between groups, the independent samples t-test was used for variables with two categories, while one-way analysis of variance (ANOVA) was applied for variables with more than two categories. In cases where ANOVA results were found to be significant, post-hoc multiple comparison tests were conducted to determine between which groups the differences occurred.

The reliability of the Occupational Health and Safety Self-Efficacy Scale used in the study was tested by calculating Cronbach's α internal consistency coefficient. In all statistical analyses, a significance level of 0.05 was adopted, and a p-value less than 0.05 was considered statistically significant. This methodological approach supported both the reliability of the data and the scientific validity of the results obtained.

Ethical Principles

Full compliance with ethical guidelines was ensured throughout the research process. The study was conducted with the approval of the Iğdır University Scientific Research and Publication Ethics Committee, granted under decision number 2025/12 dated April 25, 2025. At the beginning of the questionnaire, participants were informed about the purpose of the study and the principles of confidentiality, and participation was based on voluntary consent. No personal data were collected; only the information necessary for scientific analysis was used. The study was carried out based on a project proposal developed under the supervision of an academic advisor and submitted for academic review. The secure collection, evaluation, and reporting of the data strengthened the validity and reliability of the research.

III. FINDINGS

The internal consistency reliability of the scale used in the study was assessed using Cronbach's α coefficient. The Cronbach's α value for the overall scale was found to be 0.942, indicating a very high level of internal consistency and demonstrating that the items consistently measure the same construct. In addition, changes in the α coefficient were examined in the event that any item was removed

from the scale. According to the results obtained from the sample, no significant decrease or increase in the α coefficient was observed when the specified items were removed (all ≈ 0.941). This finding suggests that these items contribute positively to the overall reliability of the scale.

The statistical analyses conducted on the collected data enabled the examination of teachers' occupational health and safety (OHS) awareness levels in relation to various demographic and educational variables.

In the comparison based on the gender variable (Independent Samples t-Tests), no statistically significant difference was found between the mean score of male teachers ($\bar{x}$ = 3.675) and that of female teachers ($\bar{x}$ = 3.566) (t = 0.540, p = 0.593). This indicates that OHS awareness levels do not vary according to gender. Similarly, no significant difference was identified for the variable "Have you previously received OHS training?" (Yes: $\bar{x}$ = 3.650; No: $\bar{x}$ = 3.523; t = 0.437, p = 0.679). For the variable "Have you received fire safety training before?", although the mean score of those who had received training ($\bar{x}$ = 3.735) was higher than those who had not ($\bar{x}$ = 3.551), this difference was not statistically significant (t = 0.906, p = 0.372).

Likewise, no significant difference was found for the variable "Have you received search and rescue training before?" (Yes: $\bar{x}$ = 3.615; No: $\bar{x}$ = 3.643; t = -0.110, p = 0.914). Similarly, in the case of the variable "Have you received first aid training before?", no statistically significant difference was observed between the group that had received training ($\bar{x}$ = 3.602) and the group that had not ($\bar{x}$ = 3.783) (t = -0.656, p = 0.530).

The comparison between age groups (One-Way Analysis of Variance – ANOVA) revealed a statistically significant difference in OHS awareness levels (p = 0.007). This finding suggests that age may be a determining factor in OHS awareness. In contrast, no significant differences were found for the variables of educational attainment (p = 0.175), years of service (p = 0.260), or employment status (p = 0.074).

The relationship between gender and participation in various OHS training programs was examined using Chi-Square Independence Tests. A significant difference was identified for the variable "Have you received fire safety training before?" (χ^2 = 7.785, df = 1, p = 0.005), indicating that participation in fire safety training may vary depending on gender. For the other variables—OHS training, search and rescue training, and first aid training—no significant relationships were detected between gender and training participation (all p > 0.05).

The research findings indicate that teachers working at Iğdır Vocational and Technical Anatolian High School exhibit a strong profile in certain aspects of occupational health and safety awareness, while demonstrating weaknesses in others. Demographic analysis shows that the majority of participants are male (62.5%) and in the middle age group (37.5% aged 32–38, 35% aged 39–45). In terms of years of service, half of the participants are within the first five years of their professional careers. This reflects a participant group that possesses both professional experience and an openness to new approaches.

In terms of educational background, nearly half of the participants are graduates of faculties of education, suggesting that they possess fundamental knowledge related to teacher training. Additionally, the 23.1% rate of postgraduate degree holders indicates that the teachers have a certain level of competence in terms of academic development. This diversity enables the examination of OHS awareness in relation to both professional training and academic advancement.

The data obtained show that the vast majority of participants (87.5%) have previously received OHS training; however, the rates of training in fire safety (45%) and search and rescue (32.5%) remain notably low. This deficiency in disaster preparedness training can be considered a significant gap, especially for educators working in regions with disaster risk. This finding highlights the need to expand the scope and increase participation rates in training programs to be organized in cooperation between the Disaster and Emergency Management Authority (AFAD) and the Ministry of National Education.

The relatively high rate of first aid training participation (82.5%) indicates that teachers possess a certain level of awareness regarding emergency medical intervention. However, the fact that this rate has not reached full participation suggests the possibility of knowledge gaps in situations requiring urgent intervention.

The findings reveal variability in awareness of structural safety components. For instance, while the awareness of the locations of emergency exits (82.5%) and assembly points (80%) is high, the level of knowledge regarding technical infrastructure elements—such as fire detection systems, water tank maintenance, periodic inspection of elevators, and lightning rod maintenance—is irregular and insufficient. In particular, the 50% rate of "undecided" responses concerning water tank maintenance points to a significant knowledge gap in this area. This situation suggests that informational and visibility efforts carried out by school administrations may be inadequate.

The high awareness rates (over 80%) regarding the use of personal protective equipment (PPE) and occupational risks are considered a positive finding. This result suggests that teachers demonstrate greater sensitivity toward issues that directly concern their own health. Similarly, the level of knowledge related to employee rights and accident reporting procedures was generally found to be high. However, the fact that nearly 30% of participants responded with "undecided" or "disagree" in these areas indicates that there may still be knowledge gaps in the exercise of these rights.

Awareness levels concerning physical safety measures—such as securing cabinets, restricting window openings to prevent falls, and ensuring stair rail safety—present a more fragmented picture. The high proportion of "undecided" responses in these areas suggests that teachers may lack sufficient information about the school's physical safety infrastructure or that these measures are not visibly implemented.

Overall, these findings indicate that teachers have a high level of awareness regarding issues that directly affect their personal health and safety; however, their awareness is more limited in system-oriented areas such as technical infrastructure, maintenance, and disaster management. This suggests that in-school OHS practices tend to focus informational activities primarily on personal safety and legal rights, while technical and structural safety components are not sufficiently emphasized.

Therefore, the results of the study highlight the need for more comprehensive in-service training programs for teachers in the areas of disaster preparedness, fire safety, and technical maintenance processes. In addition, it is recommended that school administrations develop practices to make existing safety measures more visible, such as informational boards and regular drills, in order to raise awareness. This approach would contribute to ensuring that both teachers and students can carry out educational activities in a safe school environment.

IV. DISCUSSION

The research findings reveal that teachers working at Iğdır Vocational and Technical Anatolian High School possess a general level of awareness regarding occupational health and safety (OHS), yet exhibit knowledge gaps particularly in areas such as legislation, technical infrastructure, and equipment maintenance. Although the majority of participants have previously received OHS training—which has had a positive impact on their overall knowledge level—uncertainties remain concerning the content of this training and its practical application. Indeed, the fact that only one-third of teachers reported being familiar with OHS legislation supports the "knowledge–behavior gap" problem frequently emphasized in the literature [1].

A comparison with existing literature shows that the findings of this study are consistent with previous research. Studies by Karapınar and Özen (2020) [16] and Ersoy and Akpınar (2020) [17] similarly reported that while teachers generally possess basic OHS knowledge, they are insufficient in technical details and infrastructure-related matters. In the present study, the low level of awareness regarding the presence or functionality of structural elements such as fire detection systems, water tank maintenance, and electrical installations further suggests that information sharing between school administrations and teachers is inadequate.

On a positive note, the fact that a large proportion of teachers (92.5%) share OHS knowledge with their students presents significant potential for promoting a safety culture within the school environment. However, it remains unclear whether this dissemination of information is systematic, integrated into the curriculum, or supported by assessment and evaluation processes. The literature indicates that OHS instruction based solely on individual initiative tends to have low retention, whereas approaches integrated with institutional support yield more effective results [18].

The finding that awareness of personal protective equipment (PPE) use and occupational risks exceeds 80% suggests that teachers working in technical education environments have internalized safety consciousness. Nevertheless, for this awareness to translate into actual behavior, there is a need to increase the use of practical training, case study analyses, and drills. Without such reinforcement, improvements in knowledge levels may not directly contribute to the prevention of accidents [19].

The low level of awareness regarding physical safety measures (such as stairwell safety, securing cabinets, window safety, and slippery floor warnings) suggests that safety inspections are either not sufficiently visible or are not effectively communicated to teachers. Similarly, the limited knowledge about infrastructural components such as lightning rods and fire detection systems indicates not only technical shortcomings but also gaps in communication and administrative practices.

Overall, while teachers possess a significant level of OHS awareness at the individual level, this awareness does not appear to be sufficiently integrated into the school's structural and administrative processes. Therefore, it is necessary to move beyond individual-focused approaches and promote system-based, participatory, and continuous training-oriented OHS practices. The sustainability of an

OHS culture depends not only on the enforcement of regulations but also on incorporating teachers' experiences and observations into institutional policies.

V. CONCLUSION AND RECOMMENDATIONS

The findings indicate that teachers' OHS awareness levels are largely similar across gender, educational background, and length of professional experience; however, age appears to have a significant effect on awareness. Additionally, the variation in fire safety training participation by gender points to the need for a more balanced training plan in this area. Based on the study results, the following recommendations can be made:

Strengthening Legislative Training: Incorporating comprehensive content on legislation and rights into OHS training programs.

Technical Infrastructure Briefings: Conducting regular information sessions for teachers on infrastructural elements such as fire systems, lightning rods, water tanks, and electrical installations.

Disaster and Emergency Drills: Organizing regular and practical fire, earthquake, and search-and-rescue drills.

Systematic OHS Knowledge Sharing: Integrating the OHS information shared by teachers with students into the curriculum and supporting it through assessment and evaluation processes.

Transforming PPE Use into Behavior: Reinforcing teachers' PPE usage habits through practical training, case studies, and scenario-based drills.

Enhancing Management–Teacher Communication: Ensuring that school administrations regularly share safety inspection results with teachers.

Local and National Collaboration: Developing specialized OHS programs for vocational high schools in cooperation with the Ministry of National Education, AFAD, and OHS experts.

These recommendations aim not only to increase teachers' individual awareness but also to foster an institutional safety culture at the school level. In doing so, OHS practices can go beyond mere regulatory compliance to establish a sustainable structure in which all school stakeholders actively participate.

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