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# Second Victim Phenomenon and Support Strategies Among Orthopedic Surgeons in Türkiye: A Cross-sectional Study on Mental Health Symptoms

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## ABSTRACT

**Objective:** The second victim phenomenon describes the psychological and professional distress experienced by healthcare workers following adverse events or complications. Despite growing international recognition, empirical data on this phenomenon among surgical specialties remain scarce. This study examined the frequency of second victim experiences and related exposures among orthopedic and traumatology physicians in Türkiye, assessed available support systems, and explored associations with depression, anxiety, and stress symptoms.

**Methods:** This descriptive cross-sectional study was conducted between May and July 2025 involving 121 orthopedic surgeons and residents in Türkiye. Data were collected through an online questionnaire comprising a sociodemographic form, the Turkish version of the Second Victim Experience and Support Tool (T-SVEST), and the Depression Anxiety Stress Scale-21 (DASS-21). Analyses employed non-parametric methods, including Spearman's correlation and Kruskal-Wallis tests, with Bonferroni correction.

**Results:** Over three-quarters of participants reported exposure to at least one adverse event that could potentially trigger second victimization, and nearly 90% had no prior awareness of the concept. Approximately one-quarter met the predefined T-SVEST threshold for psychological distress, and one-fifth met the threshold for physical distress. DASS-21 scores showed strong positive correlations with T-SVEST subscales, particularly psychological distress, physical distress, loss of professional self-efficacy, and turnover intention. Turnover intention was higher among physicians with more than 15 years of experience, whereas associate professors showed greater physical distress and higher absenteeism compared with residents. A considerable proportion of participants perceived institutional support as inadequate.

**Conclusion:** Second victimization among orthopedic surgeons in Türkiye has multidimensional effects, encompassing psychological and physical symptoms, reduced professional self-efficacy, turnover intentions, and absenteeism. These findings highlight the insufficiency of existing support mechanisms and the urgent need for preventive, systematic institutional strategies to protect physician well-being and ensure workforce sustainability.

**Keywords:** Second victim phenomenon, orthopedic surgery, psychological distress, depression, healthcare workers

## INTRODUCTION

The concept of the "second victim" was first described by Wu (1). In the context of medical errors, complications, or patient safety incidents, the first victim is the patient, whereas the second victim refers to the healthcare professional—such as a physician, nurse, pharmacist, etc.—who may have been involved in the event and subsequently suffers negative consequences (2,3).

Often, these professionals perceive themselves as personally accountable for the unexpected patient outcome, leading to self-doubt regarding their clinical skills and knowledge (4,5). Medical errors or adverse events can therefore have profound and lasting psychological impacts on healthcare workers (6). Reported symptoms among second victims include intrusive recollections, anxiety, self-directed anger, feelings of remorse, emotional distress, fear of repeating mistakes, shame, guilt, and disturbances in sleep (7). If such reactions are not identified promptly and sufficient support systems are not provided, they may progress into more serious mental health conditions, including depression, anxiety disorders, or post-traumatic stress disorder. Although

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second victim reactions may partially mirror PTSD-like symptoms, the phenomenon is conceptually distinct: it originates from clinical accountability, moral distress, and professional consequences that follow adverse events, complications, or unexpected patient outcomes. Rather than being tied to a single traumatic episode, second victimization develops within ongoing medical practice and therefore represents a broader, profession-bound construct (3,7). A related but conceptually distinct construct is "moral injury", referring to the psychological distress that arises when clinicians perpetrate, fail to prevent, or witness acts that transgress their deeply held moral beliefs, often due to systemic constraints rather than a single adverse event (8). Unlike second victim reactions, which center on a discrete triggering incident, moral injury reflects a broader, cumulative toll of being unable to act according to one's professional values.

Recognition of the second-victim phenomenon allows healthcare workers' emotional burdens to be acknowledged and their need for psychological support to be addressed. In "punitive" clinical environments with insufficient support structures, healthcare workers often feel apprehensive about reporting medical errors, which in turn negatively impacts the prevention of future errors (9). Studies have shown that many healthcare professionals face difficulties in obtaining support after a medical error (10,11).

In the literature, some studies have reported that surgeons, due to the nature of their work in which the link between technical skills and patient outcomes is more pronounced, experience deeper reactions as second victims (12,13). Orthopedics and traumatology is one of the surgical specialties in which malpractice claims are frequently encountered (14). This study aimed to investigate the second victim phenomenon among orthopedic and traumatology specialists in Türkiye, the support systems they have to cope with it, and the depression, anxiety, and stress symptoms that may result from being a second victim. This study represents the first empirical investigation of the second victim phenomenon among orthopedic surgeons in Türkiye. The type of situation leading to the second-victim phenomenon (medical error, adverse patient-safety event, or complication) was not an objective of this study.

## METHODS

### Study Design

This cross-sectional, descriptive study was designed to investigate the frequency of second victim experiences and exposure to potentially triggering events, the support strategies utilized, and the relationship between second victim experiences and mental health symptoms such as depression, anxiety, and stress among orthopedic physicians in Türkiye.

Participants were recruited from among orthopedic surgeons and residents in Türkiye. Data were collected between 23 May 2025 and 23 July 2025 through an online questionnaire designed using Google Forms. The survey link was disseminated via professional communication channels, including orthopedic societies, academic and clinical WhatsApp groups, and e-mail networks. The invitation message clearly stated that participation was voluntary and informed consent was required. The purpose of the study was explained, and participants had the option to decline. Confidentiality and anonymity were maintained throughout the process, and no identifying personal information was collected. Participants received no financial compensation for their participation.

### Sample Size Calculation

The primary sample size calculation was based on the study's primary objective: to examine associations between scores on the Turkish version of the Second Victim Experience and Support Tool (T-SVEST) and scores on the Depression Anxiety Stress Scale-21 (DASS-21). An a priori power analysis was performed using G*Power version 3.1.9.7 (Heinrich-Heine-Universität Düsseldorf, Germany). For a two-tailed correlation analysis, assuming a medium effect size (r=0.30), an alpha level of 0.05, and a statistical power of 80%, a minimum of 84 participants was required. As no previous study provided a directly transferable effect size estimate for the primary association examined in the present study, a conventional medium effect size was adopted. To account for potential exclusions and incomplete data, the target sample size was increased to at least 95 participants. A total of 126 orthopedic physicians completed the questionnaire; five participants who reported receiving psychiatric treatment were excluded before analysis, resulting in a final sample of 121. Comparisons according to sociodemographic and occupational characteristics were considered secondary analyses.

The study population comprised orthopedic surgeons and residents working in public, university, or private hospitals in Türkiye. Inclusion criteria were: age 18-65, active or past practice in orthopedics and traumatology, and provision of informed consent. Incomplete responses, entries from other specialties, and participants reporting psychiatric treatment were excluded. Participants who were receiving psychiatric treatment were excluded to minimize the confounding effect of pre-existing psychiatric conditions on assessed distress symptoms.

The study was approved by the Ethics Committee of İstanbul Medipol University (decision no: 606, date: 22 May 2025) and conducted in accordance with the Declaration of Helsinki.

### Data Collection Tools

Data were collected using a structured online questionnaire comprising three sections:

Sociodemographic and Clinical Form: Developed for this study, including age, gender, education, years of experience, academic title, history of psychiatric diagnosis and treatment. In addition, participants were asked two questions: "Have you previously been involved in an adverse patient safety event?" (defined as harm, or the risk of harm, to a patient arising from the healthcare provided rather than from the patient's underlying clinical condition) and "Have you previously heard of the 'second victim phenomenon?"

T-SVEST: The SVEST, originally developed by Burlison et al. (15), was designed to facilitate the implementation and evaluation

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of support resources for second victims within healthcare organizations. The Turkish version comprises 24 items across nine domains: psychological distress (4 items), physical distress (4 items), colleague support (2 items), supervisor support (4 items), institutional support (2 items), non-work-related support (2 items), professional self-efficacy (2 items), turnover intention (2 items), and absenteeism (2 items). Additionally, seven items assess healthcare workers' preferences regarding potential support resources, yielding a total of 31 items. All items are rated on a five-point Likert scale, and the scoring and reverse-coding procedures are described in the Statistical Analyses section. The Turkish version of the scale has been validated and shown to be reliable (16).

DASS-21: The DASS-21, developed by Lovibond and Lovibond (17,18), is a self-report instrument widely used to assess negative emotional states. Its Turkish adaptation and psychometric validation were carried out by Yılmaz et al. (19). The tool comprises three subscales—depression, anxiety, and stress—each including seven items rated on a four-point Likert scale. The reliability and validity of the Turkish version across both non-clinical and clinical populations were later confirmed in further analyses by Sarıçam (20).

### Statistical Analyses

All analyses were performed using IBM SPSS Statistics 26. Continuous variables were presented as mean ± standard deviation when normally distributed and as median ($25^{th}$-$75^{th}$ percentiles) when the normality assumption was not met. Categorical variables were presented as frequencies and percentages. The T-SVEST employs a five-point Likert response format ranging from 1 (strongly disagree) to 5 (strongly agree). Most items in the colleague, supervisor, institutional, and non-work-related support domains are worded positively (e.g., "Sharing what happened with my colleagues helps me feel better"); responses for these items were reverse-coded during data entry so that a response of "strongly agree" was recorded as 1 and "strongly disagree" was recorded as 5. This ensured that, as with the remaining domains, a higher recorded score consistently reflects a worse outcome—in this case, a greater perceived lack of support—rather than reflecting greater support. A mean score of ≥4 therefore reflects the presence of second victimization across all domains, including the support domains once reverse-coded; higher scores throughout the instrument correspond to greater severity, whether in terms of psychological/physical distress, professional consequences, or lack of support. The data distribution was assessed using Kolmogorov-Smirnov and Shapiro-Wilk tests. Because the normality assumptions were not met, non-parametric methods were used.

Spearman's correlation was used to assess associations between continuous variables. Group differences in T-SVEST and DASS-21 scores by age, academic title, and years of practice were analyzed with the Kruskal-Wallis H test. Pairwise comparisons with Bonferroni correction were performed for significant results. The internal consistency of the T-SVEST and DASS-21 scales in the study sample was evaluated using Cronbach's alpha coefficients. T-SVEST subscale scores were compared between participants with and without prior experience of an event related to the second victim phenomenon using the Mann-Whitney U test. A two-tailed $p<0.05$ was considered statistically significant.

## RESULTS

A total of 121 orthopedic and traumatology physicians participated in the study. The sociodemographic characteristics of the study sample are presented in Table 1.

The most preferred source of support was a respected colleague. Detailed results for T-SVEST and DASS-21 scores are shown in Tables 2 and 3.

In the present sample, the T-SVEST demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of 0.948 for the total scale; the alpha coefficients of its subscales ranged from 0.837 to 0.908. The DASS-21 also showed excellent internal consistency, with Cronbach's alpha coefficients of 0.936 for the depression subscale, 0.920 for the anxiety subscale, 0.916 for the stress subscale, and 0.967 for the total scale.

The strongest positive correlations between total DASS scores and T-SVEST subscales were observed for professional self-efficacy, turnover intention, psychological distress, and physical distress. In particular, depression correlated strongly with turnover intention

**Table 1. Sociodemographic characteristics of the study sample**

| Sociodemographic variables | n (%) |
|---|---|
| Gender | |
| Male | 118 (97.5) |
| Female | 3 (2.5) |
| Age | |
| <25 | 4 (3.3) |
| 25-35 | 65 (53.7) |
| 36-45 | 43 (35.5) |
| 46-55 | 5 (4.1) |
| >55 | 4 (3.3) |
| Academic title | |
| Resident physician | 58 (47.9) |
| Specialist physician | 40 (33.1) |
| Assistant professor | 2 (1.7) |
| Associate professor | 17 (14) |
| Professor | 4 (3.3) |
| Professional experience | |
| <2 years | 13 (10.7) |
| 2-5 years | 38 (31.4) |
| 6-10 years | 26 (21.5) |
| 11-15 years | 23 (19) |
| >15 years | 21 (17.4) |
| Exposure to an event potentially associated with the second victim phenomenon | |
| Yes | 93 (76.9) |
| No | 28 (23.1) |
| Awareness of the second victim phenomenon | |
| Yes | 13 (10.7) |
| No | 108 (89.3) |

n: Number of participants, %: percentage

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**Table 2. Median T-SVEST subscale scores with percentage of agreement, and perceived desirability of potential support options among study participants**

| | Median (25th-75th percentile) | % of agreement (scores ≥4) |
|---|---|---|
| Psychological distress | 3.00 (2.00-3.75) | 23.9 |
| Physical distress | 2.50 (1.75-3.50) | 18.18 |
| Colleague support | 3.00 (2.00-4.00) | 25.61 |
| Supervisor support | 3.00 (2.50-3.50) | 20.66 |
| Institutional support | 4.00 (3.00-4.50) | 54.54 |
| Non-work-related support | 3.00 (2.00-4.00) | 33.88 |
| Professional self-efficacy | 2.00 (1.50-3.00) | 14.04 |
| Turnover intentions | 2.50 (1.50-3.50) | 22.31 |
| Absenteeism | 2.00 (1.00-3.00) | 15.70 |
| | **Median (25th-75th percentile)** | **Neutral %, desired %** |
| The ability to take time away | 3.00 (2.00-4.00) | 18.2-38.8 |
| A specified peaceful location | 3.00 (2.00-4.00) | 19.8-48.8 |
| A respected peer to discuss | 4.00 (3.00-4.00) | 18.2-58.6 |
| An employee assistance program | 3.00 (2.00-4.00) | 23.1-42.2 |
| A discussion with manager or supervisor | 3.00 (2.00-4.00) | 19.8-48.7 |
| The opportunity to schedule a counselor | 3.00 (2.00-4.00) | 27.3-34.7 |
| A confidential discussion is available 24 h a day | 3.00 (1.00-4.00) | 25.6-27.3 |

T-SVEST: Turkish version of the Second Victim Experience and Support Tool, Neutral: 3 score, Desired: scores ≥4

**Table 3. Median scores of the DASS-21 scale**

| | Median (25th-75th percentile) |
|---|---|
| DASS-depression | 7.00 (3.00-12.00) |
| DASS-stress | 8.00 (5.00-13.00) |
| DASS-anxiety | 6.00 (1.00-8.00) |
| DASS-total | 21.00 (9.00-31.00) |

DASS-21: Depression Anxiety Stress Scale-21

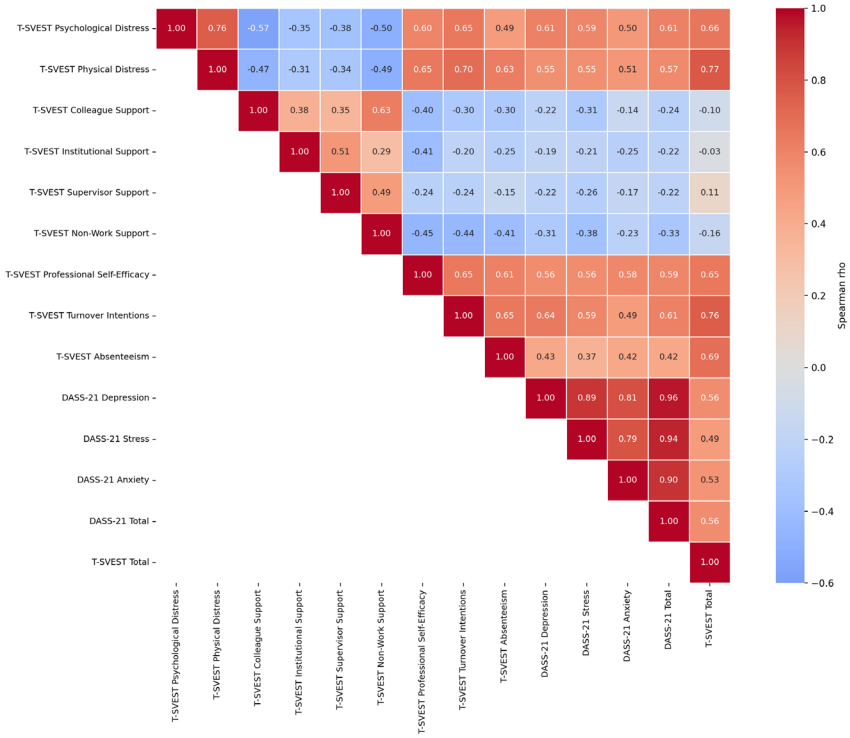


**Figure 1.** Correlations among participants' subscale scores

*T-SVEST: Turkish version of the Second Victim Experience and Support Tool, DASS-21: Depression Anxiety Stress Scale-21*

*Color intensity reflects the magnitude of Spearman's rho values; red indicates positive and blue indicates negative correlations*

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(Spearman's rho=0.64) and psychological distress (Spearman's rho=0.61) (Figure 1).

Group differences in T-SVEST and DASS-21 subscale scores by age group, academic titles, and years of practice were analyzed using the Kruskal-Wallis H test. When significant differences were found, pairwise comparisons with Bonferroni correction were performed, and adjusted p-values were reported. A significance level of $p<0.05$ was accepted.

Kruskal-Wallis analysis by age group showed significant differences in psychological distress ($H=11.11$, $p=0.025$), physical distress ($H=10.75$, $p=0.029$), and absenteeism ($H=9.62$, $p=0.047$). However, pairwise comparisons did not reveal significant differences between specific age groups.

When comparing years of medical practice, the Kruskal-Wallis test showed significant differences in professional self-efficacy ($H=10.58$, $p=0.032$) and turnover intention ($H=10.73$, $p=0.030$). For turnover intention, pairwise comparisons revealed that physicians with >15 years of experience had a significantly higher mean rank (75.38) than those with <2 years of experience (36.96) (Bonferroni-adjusted $p=0.017$). For professional self-efficacy, no individual pairwise comparison remained significant after Bonferroni correction, despite the significant omnibus test.

When comparing T-SVEST subscale scores across academic title groups, the Kruskal-Wallis test revealed statistically significant differences in the physical distress ($H=11.98$, $p=0.017$) and absenteeism ($H=9.65$, $p=0.047$) subscales. No significant differences were found in the other subscales (all $p>0.05$). Pairwise comparisons demonstrated that associate professors had significantly higher mean rank scores on the physical distress subscale than resident physicians (Bonferroni-adjusted $p=0.010$; mean ranks: associate professors=83.18, residents=51.72). No significant differences were detected between other pairs of groups. Similarly, on the absenteeism subscale, resident physicians and associate professors differed significantly (Bonferroni-adjusted $p=0.028$; mean ranks: associate professors=81.06, residents=52.82).

Kruskal-Wallis analyses showed no significant differences in DASS-21 subscales or total scores across sociodemographic variables. In the Mann-Whitney U test, physicians with second-victim experiences scored significantly higher on psychological and physical distress, professional self-efficacy, and turnover intention (all $p<0.05$). Those without such experiences reported higher scores on colleague support, supervisor support, and non-work-related support ($p<0.05$). No differences in institutional support or absenteeism were found ($p>0.05$) (Table 4).

## DISCUSSION

In this study, the multidimensional effects of the second-victim phenomenon were examined in a sample of 121 orthopedic and trauma physicians. Most participants were male and from younger age groups, consistent with previous reports (21). A significant proportion experienced at least one event potentially leading to second victimization, consistent with earlier findings. Surgeons frequently face complications and adverse events throughout their careers, which are among the most common triggers of second victim experiences (4,12,22). These results suggest that such complications are inherent to surgical practice but can still profoundly affect physicians both psychologically and professionally.

Nearly 90% of participants were not previously aware of the second victim phenomenon, indicating very low awareness among orthopedic and traumatology physicians in Türkiye. Although the concept was defined over two decades ago and systematic support programs have since been developed in many countries (4,5), this lack of awareness reflects institutional and educational shortcomings in our country.

In our study, about one-fourth of participants reported psychological distress, and about one-fifth reported physical distress, indicating that the second victim phenomenon involves both emotional and physical symptoms. These proportions were considerably lower than those reported by Alishaq et al. (23), who found psychological distress in 63% and physical distress

**Table 4. Comparison of T-SVEST subscales between groups with and without exposure to an event potentially associated with the second victim phenomenon**

| T-SVEST | Exposure to an event potentially associated with the second victim phenomenon | | |
|---|---|---|---|
| | Yes (n=93) Median ($25^{th}$-$75^{th}$ percentile) | No (n=28) Median ($25^{th}$-$75^{th}$ percentile) | p-value |
| Psychological distress | 3.25 (2.50-4.00) | 2.00 (1.00-3.00) | <0.001 |
| Physical distress | 3.00 (1.75-3.75) | 2.00 (1.44-3.00) | 0.007 |
| Colleague support | 2.50 (2.00-3.00) | 4.00 (3.00-5.00) | <0.001 |
| Supervisor support | 3.00 (2.50-3.50) | 3.50 (2.94-4.00) | 0.011 |
| Institutional support | 4.00 (3.00-4.50) | 4.00 (3.00-5.00) | 0.356 |
| Non-work-related support | 3.00 (1.50-4.00) | 4.00 (3.00-4.62) | 0.001 |
| Professional self-efficacy | 2.50 (1.50-3.00) | 2.00 (1.00-2.50) | 0.014 |
| Turnover intentions | 3.00 (1.50-4.00) | 2.00 (1.00-3.00) | 0.013 |
| Absenteeism | 2.00 (1.00-3.00) | 1.75 (1.00-3.00) | 0.122 |

T-SVEST: Turkish version of the Second Victim Experience and Support Tool

in 68% of participants, and by Nosanov et al. (21), who reported anxiety, guilt, and shame in 84% of surgeons; this discrepancy may reflect differences in study population, measurement approach, or cultural context. Nonetheless, consistent with the broader literature, intrusive thoughts, sleep disturbances, and fatigue have also been highlighted as typical symptoms of the second victim phenomenon (5,24).

A considerable proportion of orthopedic physicians reported insufficient institutional support, which is consistent with previous studies. Nydoo et al. (5) found that 53% of healthcare workers received no support, while Alishaq et al. (23) reported that 31% felt their institutions did not care about their well-being. The rates of perceived insufficiency in colleague and supervisor support were relatively low; however, the fact that one in five physicians stated that they did not receive adequate support from their managers is still noteworthy. The literature emphasizes that an unfair and unsupportive institutional culture exacerbates second victimization, whereas structured and multi-layered support models—such as peer support teams, counseling programs, and open communication—play a critical role in protecting physician well-being (25-27). Taken together, our findings underline that improving perceived support systems remains one of the most urgent needs in Türkiye.

Findings regarding the loss of professional self-efficacy indicate that events potentially leading to second victimization undermine physicians' confidence in their professional identities. Consistent with our findings, Alishaq et al. (23) similarly reported that 39% of participants expressed low professional self-efficacy following adverse events. In addition to reducing self-confidence, this may contribute to long-term outcomes such as burnout, decreased performance, and disengagement from work. The observed turnover intentions and absenteeism further suggest that the second victim phenomenon threatens not only individual well-being but also institutional workforce sustainability, aligning with Burlison et al. (15), who reported a strong association between SVEST scores and turnover intention.

In our study, the most prominent outcomes of the second victim phenomenon among orthopedists were psychological and physical distress, both of which showed strong correlations with DASS-21 subscales. These results align with typical second victim symptoms reported in the literature, including depression, anxiety, and sleep disturbances (5,12,21,24). Across support dimensions, very weak to weak negative correlations were observed between high psychological distress and perceived insufficient support. As reported in some studies, this may suggest that support mechanisms are generally activated in the post-event process, and that those experiencing distress may receive more support at the time of the triggering event itself (15,25). This finding may also be interpreted as evidence that support systems in Türkiye, when available, tend to operate in a more reactive manner, or that differences in measurement timing may account for this pattern. Loss of professional self-efficacy correlated strongly with depression, anxiety, and stress, consistent with literature describing "moral injury" in physicians (22,28). Turnover intention and absenteeism were likewise associated with psychological distress, once again indicating that the second victim phenomenon threatens both physician well-being and institutional workforce sustainability (15,23).

In our study, age was associated with differences in psychological distress, physical distress, and absenteeism, while years of practice were linked to professional self-efficacy and turnover intention. With respect to turnover intention, orthopedists with more than 15 years of experience had a significantly higher mean rank than those with less than two years of experience, suggesting that later-career orthopedists may be more prone to professional disengagement. This finding warrants cautious interpretation, as the cross-sectional design and the absence of data on event frequency preclude drawing conclusions about the accumulation of adverse events over time. Although the omnibus test for professional self-efficacy was significant, no individual pairwise comparison remained significant after Bonferroni correction; therefore, this finding should be interpreted with caution. Given that senior physicians constituted a smaller proportion of the sample, this result merits confirmation in larger and more balanced samples. While the literature often emphasizes that younger surgeons report stronger feelings of guilt, anxiety, and inadequacy after complications (12,22,28), our findings suggest that turnover intention may also persist or even intensify among senior physicians over the course of their careers (23).

Among academic title groups, associate professors reported higher levels of physical distress and absenteeism than residents, suggesting that senior responsibilities may exacerbate the second victim phenomenon. The literature also notes that academic surgeons experience considerable distress after complications (21). Our finding that associate professors reported higher physical distress and absenteeism suggests that seniority alone does not protect against second victimization, consistent with the broader recognition that adverse events are linked to moral injury regardless of career stage (22).

Physicians with experience of adverse events reported greater psychological and physical distress, reduced self-efficacy, and increased turnover intention, indicating that second victimization is most severe among those directly exposed. Conversely, those without such experiences scored higher on colleague, supervisor, and non-work support, suggesting a perceived lack of support in potential incidents. It should be noted that our questionnaire assessed direct personal involvement in an adverse event rather than indirect or team-level exposure; therefore, elevated scores among participants without an identifiable adverse event cannot be firmly attributed to team-level second victimization as described in the literature (25,27). Instead, these scores may reflect broader perceptions of workplace distress or support, representing a potential confounding factor in experience-based comparisons rather than direct evidence of second victimization itself.

Overall, our findings, consistent with the international literature, show that the second-victim phenomenon among orthopedists

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has multidimensional effects at both the individual and institutional levels (psychological and physical distress, loss of self-efficacy; turnover intention, absenteeism, insufficient support). Limited studies in Türkiye have similarly highlighted the vulnerability of younger physicians and inadequate support systems (29-31). As the first empirical study of orthopedists in Türkiye, this research fills a significant gap and underscores the need to address second victimization more seriously in surgical specialties.

### Study Limitations

This study has several limitations. Participants were not asked how often they experienced adverse events, and differences in timing between the DASS-21 (past week) and T-SVEST (post-event) may have influenced the results. Although over 75% reported at least one adverse event, the inclusion of participants without such experiences remains a limitation, as the questionnaire did not distinguish between the complete absence of exposure and indirect or team-level exposure that was not directly assessed. Additionally, personal history or other occupational stressors were not assessed, meaning that part of the distress observed may reflect additional emotional burdens rather than second victimization alone. Another limitation is the lack of documentation regarding the type of triggering event, which may limit the interpretability of prevalence findings. Comparisons by institution type were not reported, as several institution categories contained very small subgroup sizes (e.g., n=2), which would have limited the reliability and interpretability of such comparisons. Finally, the sample, being predominantly male and composed of junior residents/specialists, further limits generalizability, especially in comparison to senior physicians. Furthermore, this study employed a convenience-based online sampling strategy, and the response rate could not be calculated because the number of physicians who received the survey link was unknown. This limits the generalizability of the findings, and the reported frequencies should therefore be interpreted as estimates of exposure and self-reported experience rather than as formal prevalence figures.

Second victimization is better conceptualized as a psychosocial stress response rather than a clinical psychiatric disorder, and future research may help clarify whether this phenomenon could be situated within broader health-related classifications. Future research may also expand upon these findings by distinguishing between event types (e.g., medical error, complication, adverse event) to better understand how the nature of the incident shapes second victim responses. Additionally, extending similar research to other healthcare professional groups may increase conceptual visibility and contribute to a broader understanding of second victim experiences across clinical disciplines.

## CONCLUSION

This study is the first to examine the second-victim phenomenon among orthopedists in Türkiye and shows that such experiences may lead to intense psychological distress, physical symptoms of stress, loss of self-efficacy, and professional consequences, such as absenteeism and turnover intentions. Turnover intention appeared more pronounced among physicians with longer professional experience, indicating that second victimization and its professional consequences extend well beyond the early-career stage. The findings further suggest that existing support systems were often perceived as inadequate and that preventive strategies and structured post-event support should be prioritized to protect both clinician well-being and workforce sustainability. While the study does not establish causality or explore institutional and cultural mechanisms in depth, identifying the prevalence and the emotional impact provides an important starting point for the field. By increasing awareness of second victimization within orthopedics, this work offers an empirical foundation for future research—particularly studies that differentiate event types, examine contextual triggers, and involve broader healthcare professional groups to strengthen conceptual clarity and guide the development of more supportive clinical environments.

### Ethics

**Ethics Committee Approval:** The study was approved by the Ethics Committee of İstanbul Medipol University (decision no: 606, date: 22 May 2025) and conducted in accordance with the Declaration of Helsinki.

**Informed Consent:** The invitation message clearly stated that participation was voluntary and informed consent was required.

### Footnotes

**Author Contributions:** Concept - Y.S.F., A.K., S.Y.Ç., İ.H.A., F.F.; Design - Y.S.F., A.K., S.Y.Ç., İ.H.A., F.F.; Data Collection and/or Processing - Y.S.F., S.Y.Ç., F.F.; Analysis and/or Interpretation - Y.S.F., S.Y.Ç., F.F.; Literature Search - Y.S.F., S.Y.Ç., F.F.; Writing - Y.S.F., A.K., S.Y.Ç., İ.H.A., F.F.

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