INTERNATIONAL JOURNAL OF HEALTH MANAGEMENT AND TOURISM

Volume: 7 Issue: 3 Year: 2022 E-ISSN: 2458-9608

IJHMT

International Journal of Health Management and Tourism (IJHMT)

Address Kizilcasar Neighbourhood, 1184.St.
No:13, 06830 Incek, Golbasi
ANKARA, TURKEY

Telephone + 90 312 586 88 39

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Abstracting and indexing: Google Scholar, Scientific Indexing Services (SIS), Infobase Index, Researchbib Academic Resource Index, Arastirmax Scientific Publication Index, Internationla Institute of Organized Research (I2OR), Directory of Research Journal Indexing (DRJI), Root Indexing – Journal Abstracting and Indexing Service, ASOS İndeks, Bielefeld academic Search Engine (BASE), SOBIAD, Scilit, Türkiye Atıf Dizini, Index Copernicus International

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https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1169298

Int Journal Of Health Manag. And Tourism 2022, 7(3),265-287

JHMT Editorial

Internatıonal Journal Of Health Management And Tourism

FEMVERTISING PRACTICES IN WELLNESS TOURISM: CASE OF RETREAT CENTERS IN THE UNITED STATES

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Received: 31. 08.2022

Accepted: 14.11 .2022

Research Article

Abstract

Aim: This study scrutinizes femvertising practices in wellness tourism, in the context of equitable gender representations and neutralization of gender objectification.

Methods: Goffman's infantilization theory is employed.

Results: The results chronicle a shift towards egalitarian gender profiling, based on the majority of the coding points. To date, limited studies have scrutinized the concept of femvertising in wellness tourism spaces.

Conclusion: Altogether, this study advances the existing understanding of femvertising in the context of wellness spaces, reiterates prominent shift towards equitable representations of gender and reports

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analogy in the promotional content and vision of the wellness centers, irrespective of the nature of ownership.

Keywords: Wellness Spaces, Yoga Retreat Centers, Stereotyping, Femvertising, Gender And Lifestyle Entrepreneurs

INTRODUCTION

Interest in wellness tourism has soared in the post-covid times as destinations develop rebranding strategies and elevate wellness and health to the top of their agenda (Backman, Huang, Chen, Lee & Cheng 2022; Karn & Swain 2017). There is a necessity to explore innovative and sustainable pathways to advance the dais of wellness tourism (such as agro-tourism, art tourism, and yoga tourism) (Escobar, 2018). From a holistic perspective, wellness travel typically coalesces elements of health care, exercise, and relaxation (Dillette, Douglas & Andrzewjewski 2021; Karn & Swain 2017). For wellness tourism to be sustainable, it needs to embrace a responsible agenda and promote social welfare of tourists and the host community. The social justice aspect particularly draws attention towards a broad spectrum of issues associated with gender equity and equitable minority representations to promote pro-social/responsible behavior (Ramkissoonn 2022). Retreat centers constitute a notable area of scrutiny. Therefore, it is important to determine if they adhere to social justice principles and promote gender equity. Yoga retreat centers are the topic of focus because popularity of yoga has soared in the west and number of yoga retreat centers have exponentially grown (Chhabra 2021; Dillette et al. 2021). In a nutshell, a key focus of this study is to scrutinize the manner in which women are visually depicted in the online marketing content of yoga retreat centers.

Extant literature has suggested that women have been showcased in "traditional stereotypical" roles; that is, they are portrayed as familial, uncompetitive, quiet, and timid (Chhabra, Andereck, Yamanoi & Plunkett 2011; Kumar & Taunk, 2013; Lawton, 2009; Pritchard & Morgan, 2000; Tortajada, Arauna, & Martinez, 2013). Several studies have argued that preferred features of collectively distributed and molded gender representations are portrayed by advertisers and these depictions continue to internalize socially concocted images of masculinity and femininity (Armendia-Muneta et al. 2020; Kyrousi, Panihyrakis & Panopoilis 2016). Selected postures and traits result in facsimiles and 'hyperritualization' (Aitchison, 1999; Sargent 2017; Scott, 1986; Tortajada etal. 2013). It is an established fact that marketing media plays an influential part by mirroring public views and enduring changes in

societal values and norms (Armendia-Muneta et al. 2020; Lawton, 2009; Sirakaya & Sonmez, 2000). For instance, Lawton (2009) argues that media representations via visual advertisements overwhelm the audience and shape views, as agents of social change. Advertisements, therefore, shape gender ideologies in society (Chhabra, Andereck, Yamanoi & Plunkett 2011; Chhabra & Johnston 2014; Lindner, 2004) and stereotype advertising can reinforce preferred beliefs and values, thereby damaging the social fabric of a community (Pritchard & Morgan, 2000).

Recent studies point out that women hold potential to be successful lifestyle entrepreneurs and can shift the social landscape towards a more equitable dais by toning down infantilization and stereotype images (Belinghari et al. 2021; Shanmugathas 2021). Aligned with this view, some scholars are taking the stand of femvertising to check stereotype representations of gender (Akstem et al. 2017; Feng, Chen & He 2019). Femvertising is an advertising practice that questions stereotype images in advertising and is geared towards promoting positive favorable self-views of women (Akstem et al. 2017). Several scholars have reported that femvertising lowers unfavorable reaction to advertising and positively sways intent to purchase in an ethical and inclusive manner (Akstem et al. 2017; Feng et al. 2019). Less stereotypical portrayal of women can prompt a more favorable response from consumers. Interest in femvertising has surged in the recent decade albeit this strategy has been sparsely applied in the travel and tourism field. It is important to inspect whether micro enterprises, such as the retreat centers, practice femvertising. Microenterprises are mostly managed by lifestyle entrepreneurs and can play a key role in fostering social capital (Karyotaki et al. 2022; Morrison 2006) and promoting sustainable practices (Wang, Li & Xu 2019; Wang, Hung & Huang 2019). They are usually small or medium sized and play a key role in generating benefits for the host home community through local purchases and employment of local people (Dias, Patuleia & Gonzalez-Rodriguez 2021; Jack and Anderson 2002).

Limited studies on retreat centers have explicitly scrutinized issues associated with inequality/gendered disparities (Deslippe 2018; Miller 2018; Sargent 2017). Ongoing scrutiny of advertising content is crucial to question/constrain prevailing social configurations and offer an update on transformational initiatives centered on social welfare in visited and visiting communities. To add to this sparse line of inquiry, this study scrutinizes the manner in which gender is showcased, by examining the marketing content of the signature websites of a stratified purposeful sample of retreat centers in the US. An effort is made to determine if they practice femvertising and are more mindful of the manner in which gender is portrayed on their signature websites. Signature websites and online marketing platforms are potent spaces for

deliberations, assessment, enlistment and transformation (Hoffman 2011).

In summary, this study is guided by two key research questions: 1) How is gender is depicted on the signature websites of wellness-oriented MSEs such as the yoga retreat centers in the United States? Is there any difference in the promotional themes of retreat centers managed solely by women or with a male partner and those managed solely by men? Furthermore, based on the results, this study discusses the potential role of women, as lifestyle entrepreneurs, in changing the social landscape of their home communities. It offers insights on the extent to which femvertising practices are pursued.

To date, limited studies have used the concept of femvertising in wellness spaces. This study makes an important contribution in this regard. Furthermore, it identifies ways in which gender is objectified. It espouses that agencies and institutions, offering wellness programs, are important socializing agents and their advertising messages shape gender ideologies in the society. They can play a key role in defusing gender bias and devising inclusive pathways that hold potential to stimulate equitable social structures.

1. BACKGROUND

This section first offers a synopsis of existing research on gender representations. Secondly, it tracks progress, towards femvertising, in tourism spaces. An overview of studies scrutinizing women's role in the workplace is also offered. Several studies note that women, as lifestyle entrepreneurs of micro enterprises, can play a key role in dispelling gender myths and hold tremendous potential to contribute towards social welfare.

Numerous studies have offered insights on gender representations in tourism advertising. Kyrousi, Panihyrakis and Panopoulos (2016) note that women have been mostly ritualized in two roles: through the role of a dutiful wife, mother, or daughter, in a caring occupation or through a fictitious role as an object of glorified attraction (as a physical beauty, a sex object or in a similar decorative role) (Armendia-Muneta et al. 2022, p. 406). Most professional depictions of women have been targeted at women-dominated careers such as nursing and teaching. Men, on the other hand, have been portrayed in more mature, wiser and authoritative roles (Prieler, Ivanov & Hagiwara 2015; Lawton 2009; Sirakaya & Sonmez 2000). In 2011, Chhabra et al. (2011) looked at the pictorial content of vacation guides of state tourism offices across the US to ascertain the manner in which gender was portrayed. Goffman's (1979) framework was used. Both prominent and subdued visual signs portrayed the manner of relationships across gender. For some of Goffman's domains (for instance- physical size and

rank order of gender), objectified representations were noted while gender equity patterns (traces of femvertising) were evident in other dimensions. On the contrary, a perusal of other studies reveals that most media advertising has been slanted towards ritualizing females in subservient poses (Sirakaya & Sonmez, 2000; Lawton, 2009; Lindner, 2004; Tortajada et al. 2013). In other words, they have favored masculine points of view. This calls for a femvertising agenda to dispel gender myths.

Extant literature reports negative impacts of ritualizing females through biased marketing messages albeit very few studies have offered a pathway to treat this inequity pattern. Chhabra & Johnston (2014) use the Goffman framework in their analysis of gender advertisements by destination marketing organizations. They report subtle evidence with regard to the manipulation of visual imagery. Women are ritualized although equitable profiling, is also noted, based on several gender coding points. Employing the same framework, Sirakaya & Sonmez (2000) point to stereotypical portrayal of women in advertising, particularly in subordinate, submissive and dependent postures. A strategy to dispel the ritualized images is remiss in their study. Lindner (2004) also confirm similar stereotype patterns in her scrutiny of popular magazines in the United States. Similar results were reported by other studies (Kang 1997; Kay, Matuszek & Munson 2015; Nguyen 2021).

In view of the recurring of inequitable gender representations in several postures, several authors have signaled the danger of continued stereotyping. For instance, staring at gendered exhibits signal power and a sense of powerlessness is noted in the objects of gazing (Pritchard & Morgan, 2000b). Lawton (2009) writes that the gendered form of marketing, such as stereotype images in advertising materials, can have a reverse effect on the audience; that is, they can trigger annoyance and adverse reaction of some markets such as women travelers and diminish the attractive attributes of a destination. Along similar lines, Chhabra and Johnston point out that “some anticipated benefits of such stereotypical image promotions include stimulating customers with interesting and preferred messages to lure them to purchase products” (2014, p. 776). Infantilization of gender in online advertising can exaggerate ritualized depictions of both genders. Objectification can have far-reaching consequences. In fact, such objectified impressions can stress on gender differences and shape the manner in which perceptions and behavior of men and women and even generate illusory expectations for men (Ellemers 2018). For instance, stereotype images can barricade the type of career opportunities and spectrum of choices that exist for women (Massey 2007). According to Zalis

(2019), both genders can be impacted by bias and infantilization in that stereotyping can restrict the manner in which both genders perform and reprimand those who undertake roles outside the threshold of conventional rules.

Although recent literature increasingly highlights pitfalls of inequitable gender depictions in tourism, only a handful offer a solution to address these disparities. Rather than being susceptible to embrace one role or another, it is important to shape the archetypes to offer opportunities to both genders to succeed at home or in their profession (Aramendia-Muneta et al. 2022; Zalis 2019). On a positive note, a review of more recent literature unveils a parallel trend slanted towards femvertising. In other words, women are being portrayed in a more moderate and non-stereotype manner (Hatzithomas, Boutsouki, & Ziamou 2016; Kourtesopoulou & Chatzigianni 2021; Pan & Ryan 2007). Aramendia-Muneta et al. point out since the gender infantilization issue has been extensively examined over several decades, "the marketers have been suitably aware of gender stereotypical attributes and influences, one might expect to find awareness driven reform in this area" (2022, p. 406). To fortify this trend, it is important to convey socially mindful marketing messages (Aramendia-Muneta et al. 2022; Becherer, Helms & McDonald 2012).

Shifting trends towards gender neutral representations have also fueled concerns for gender equality, from a leadership standpoint. In 2011, the UN-WTO distributed its first Global Report on Women in Tourism 2010 which spotted tourism as a sector with potential to empower women through a variety of initiatives and leadership opportunities. The report called for initiatives to promote gender equality worldwide; it notes that women are often offered "low-skill, low-paid, and precarious jobs," and usually earn comparatively less money (almost 10-15% less) that their male colleagues. At the executive and middle levels, women have successfully demonstrated better social and teamwork skills than men (Bartol, Martin, and Kromkowski 2003); Style of leadership, based on gender, vary. For instance, according to Bartol, Martin, and Kromkowski (2003), women are more likely to demonstrate interpersonal skills.

Some studies have also noted that enterprises managed by women are comparatively smaller in size with lower debt and short-term accumulated debt (Vieru 2015). It cannot be denied, that leadership roles in tourism do not predominantly reflect gender equality; albeit, some studies indicate that women leaders dominate some sectors of the tourism industry such as travel agencies/tour operators (Sandybayev, 2015) and homestay accommodations (Ahmad

et al., 2014). Female entrepreneurs are better educated and comparatively younger in age than their male counterparts (Alonso-Almeida & Bremser 2014; Sandybayev 2015). Several studies have also noted that women managers are more likely to adapt to transformational leadership approach as they demonstrate immense talent to inspire others and hold potential to design value-generating activities (Kawira 2021; Kourtesopoulou and Chatzigianni 2021; Robinson & Beesley, 2010).

This study examines the manner in which gender is depicted on the signature websites of a purposeful sample of retreat centers across the United States. It is unique in that it also examines the gendered nature of ownership and its influence on the manner in which gender is portrayed in the mission statements. Goffman's paradigm of gender and media relations is used (Please see Table 1).

2. RESEARCH METHODOLOGY

Content analysis is conducted to determine the extent to which gender stereotypes exist in online advertising messages. This technique continues to be employed in a variety of settings (Armendia-Muneta et al. 2020; Prieler et al. 2015). Different phases of content analysis assist in data familiarization, generating initial codes (that is, coding relevant to aspects of the data in a systematic manner to ensure that all data is relevant based on the pre-determined themes (Braun & Clarke 2007)), and searching and reviewing relevant themes from the data. As pointed out by Sirakaya and Sonmez (2000), Goffman's framework is a valuable tool as it unveils the less obvious and subtle aspects of advertisements and uses images to investigate the relationship across gender by "offering simultaneous insights into the displays of both sexes (2000, p. 355). Extant literature has confirmed its credibility in ensuring a systematic and thorough scrutiny of gender visuals in advertising from the standpoint of power relationships and modeling of roles (Aramendia-Muneta, Olarte-Pascual & Hatzithomas 202; Bell & Milic 2002; Chhabra et al. 2011; Sirakaya & Sonmez 2000). In this section, first a description is offered of the manner in which Goffman's cues are employed. Next, sampling plan and date analysis procedures are described.

Goffman took an initiative to determine if there are traces of female infantilization; that is, whether women are portrayed in a manner that their posture and gesture signals proclivity towards their male counterparts (Bell & Milic 2002). Goffman's infantilization theory includes six dimensions: relative size, feminine touch, rank order of gender, gender depiction in the family, general forms of subordination, and gender detachment. Several studies have used his

dimensions to determine the extent to which women are infantilized in tourism and leisure/recreation-based advertisements, both online and in print. Table 1 presents a description of Goffman's items.

Table 1: Gender Dimensions

Dimension	Description
Relative size	Men are more likely to be presented as larger or taller than women
Feminine touch	In comparison with men who purposefully grasped objects, women are more likely to touch objects or themselves lightly or caress in a ritual manner or kept their hands close to the body. They also more often look downward rather than upward or straight ahead.
Rank order of gender	When depicted in a collaborative activity, men are commonly portrayed in an executive role whereas women are cast in a passive or supporting role. In images that represent women performing feminine tasks such as cleaning and cooking, men are depicted with no role at all.
Gender depiction in the family	Society norms are reflected in advertisement featuring the complete family. Goffman discovered that special camera techniques were employed to portray bonds between daughter and mother and father and son. In such cases, as described by Sirakaya and Sonmez (2000), "by positioning the father slightly outside the circle of other family members, male protective power and authority in the household are portrayed" (p. 356).
General forms of subordination	Bell and Milic (2002) narrate this dimension as "a tendency for women to be presented in inferior positions and poses. Women are found to be more often pictured as being under the physical care and protection of men and in spatially lower positions. They are also more likely to be portrayed performing submissive gestures such as canting head or body, bending one knee inward" (p. 205). It is implied that an erect body with the head held high is a sign of superior status.

Gender detachment	According to Goffman, men generally act as surrogate parents for women in pictures, hence many times women are seen as socially distanced from the scene. Examples include being shown as gazing in an unfocused manner or being pre-occupied, thus removed psychologically from the social situation on the whole.

Source: Chhabra et al. (2011, p. 117); After Goffman (1979)

Sampling Plan

Retreat centers, featuring yoga programs, are selected from spatially dispersed states in the United States and their websites were content analyzed in 2021/2022. To obtain a representative sample of retreat centers across United States, an amended grouping by National Geographic Society is used. National Geographic Society categorizes broadly US into five regions: the Northeast, Southwest, West, Southeast and Midwest (National Geographic n.d.). This grouping is modified by adding an 'East' region to the list as it is argued that socio-economic and demographic attributes of the 'East' region are distinct from the Northeast region (US Census Bureau n.d.). Based on the groupings, the following states are purposefully selected respectively: New York (NY) and Virginia (VA), Florida (FL), Iowa (IA), California (CA) and Washington (WA), and Arizona (AZ). Centers are identified using key words such as "yoga retreats" with 'tourists' and the name of the state from the grouping, using the Google search engine. Only those retreat centers are used which target tourists and visitors to ensure that their patronage extends beyond the local community. Next, using up to three clicks, gender imageries from approximately 105 retreat centers are identified. These are downloaded and labeled based on the state in which the retreat center is located. Approximately forty retreat centers are excluded because the images on the first page of their website did not simultaneously feature men and women. A total of 65 retreat centers are scrutinized with a total of 175 visuals.

Thematic Analysis and Coding Procedure

Drawing from Goffman's technique, each image is numerically coded based on a predesigned codebook. Counter checking was conducted by using two researchers from different ethnic backgrounds. Thematic analysis is carried out to analyze visual content. This versatile content analysis tool has been "successfully used with visual material, taking intertextuality into account to facilitate a well-balanced interpretation of underlying cultural meanings" (Walters 2016, p. 107). The research objectives necessitated use of a technique that ensured capability

to capture deeper meanings using an interpretive rather than an explicit approach (Braun & Clarke, 2006).

To ensure reliability of visual analysis, two coders are used. Several hours of training was given to make the coders conversant with the analysis procedure and Goffman's dimensions and its sub-categories. The second coder was tasked to randomly code different images, independent of the first coder. The codes were matched. To ensure academic rigor and validity, inter-coder reliability test was conducted and the agreement on different coding points was found to be robust (between 93% and 97%). Before coding the study images, a pilot test was conducted with twenty-five visuals to ensure the coders grasped accurate meaning of different categories and the coding process. Several researchers have implemented this technique and reported its robustness (Aramendia-Muneta et al. 2020; Walters 2016; Weber 1990).

Besides univariate analysis, cross Tabs (Chi Squared) are used to test statistical association between the retreat centers based on their location and their gender representations. Cross Tabs is popularly employed to analyze nominal data. Pearson Chi Square is a standard nominal level technique that has been used to determine if two categorical variables are associated with each other or are independent (Mertler & Vannata 2002). Next, a separate variable 'ownership' is used to segregate promotional themes of retreat centers based on different ownership categories: by woman only or more than one woman; both genders and; one man or men only. Furthermore, an inductive approach is employed to extract promotional themes from mission and vision statements shared on the websites. These themes are segregated based on the nature of ownership. In addition to manually identifying themes, ATLAS.ti software is used to generate word clouds to glean key themes and their sub-items. The word cloud themes are matched with those manually identified by the coders to ensure reliability.

3. FINDINGS

Results of Goffman's dimensions are summarized in Tables 2-4. Retreat centers are mostly frequented by adults, therefore images featuring children are almost non-existent on the websites. All images consisted of partial figure parts and/or whole body (Sirakaya & Sonmez 2000). Table 2 illustrates results on relative size, feminine touch, rank order of gender and gender depiction. Online promotional content at the retreat centers across the seven states suggests that approximately 42% of the women are depicted shorter in height than men. It is

also interesting to note that Iowa (at 63%) and Washington (at 58%) show the highest percentage of images with taller men. According to Lawton (2009), use of height, especially of men, suggests display of social power. Overall, 16% of the visuals depict similar heights of men and women across all states with New York portraying the highest percentage (22%) followed by California and Virginia. These differences are confirmed by the Chi Squared test (X^2=14.492 at a p value of $\pm$.05 level)

With regard to big size, 49% of the women (across US) are depicted as bigger in size than men; from a statewide standpoint, four states portray 50% (or slightly above) women in a bigger size. Only Iowa and Washington have close to 60% of the visuals that show men as bigger in size. It is worthy of note that a higher percentage of visuals depict women as taller and bigger in size; Chi squared tests do not report any statistical difference based on different regions. Several studies have postulated that online advertising of gender exaggerates stereotype portrayals of women (Kay et al. 2015; Nguyen 2021). The results suggest that the retreat centers depart from earlier studies, which predominantly showcase traces of more pronounced infantilization of women, in terms of size.

Table 2: Descriptives of Size, Feminine Touch, Rank and Gender Depiction (%)

	NY	IA	WA	FL	CA	VA	AZ	Across USA
Size								
Height (woman taller than man)								
yes	33.3	37.5	42.1	46.2	58.6	51.7	53.5	46
no	44.4	62.5	57.9	46.2	20.7	27.6	37.2	42
same height	22.2			7.7	20.7	20.7	9.3	16
Big (woman is bigger than man)								
yes	22.2	37.5	42.1	51.3	55.2	51.7	51.2	49
no	44.4	62.5	57.9	41.0	27.6	31.0	39.5	43
same size	33.3			7.7	17.2	17.2	9.3	16
Feminine Touch								
Cradling object/person								
woman cradling object/person	11.1	12.5	5.3	17.9	24.1	27.6	23.3	17
man cradling object/person	11.1		5.3	5.1	3.4	3.4	7	6
both cradling object/person		12.5	5.3	7.7	17.2	10.3	11.6	11
neither cradling object/person	77.8	75	84.2	69.2	55.2	58.6	58.1	68
Self-touching								
woman self-touching	11.1	25.0	31.6	17.9	10.3	17.2	14.0	18
man self-touching					10.3	3.4	7.0	7
both self-touching	11.1		26.3	12.8	6.9	13.8	2.3	12

neither self-touching	77.8	75.0	42.1	69.2	72.4	65.5	76.7	68
Rank Order of Gender								
Act								
woman passive & man active	11.1		10.5	2.6	6.9	3.4	4.7	7
woman active & man passive	11.1		15.8	5.1	6.9	6.9	4.7	8
neither active or passive	77.8	100	73.7	92.3	86.2	89.7	90.7	87
Gender Depiction								
Protective								
woman protective		12.5	5.3	7.7		3.4		7
man protective			5.3	7.7	6.9	6.9	9.3	7
both protective								
neither protective	100	87.5	89.5	84.6	93.1	89.7	90.7	91
Peaceful Relationship								
calmness of expression in woman	33.3	50.0	63.2	41	37.9	34.5	25.6	41
calmness of expression in man			10.5	5.1	6.9		7	7
calmness of expression in both	66.7	37.5	26.3	35.9	48.3	55.2	55.8	46
calmness of expression in neither		12.5		17.9	6.9	10.3	11.6	11

Feminine touch is represented by cradling of objects/persons. The findings reveal that more than half of the images across all retreat centers depict neither gender cradling an object or person. With regard to different states, Virginia, California, and Arizona show close to one-quarter of the visuals of women in a cradling posture. New York, Iowa and Washington had 75% or above of visuals showing none in that position. For the most part, infantalization of gender (particularly women) with regard to this domain, is not noted. Similar results were reported by Chhabra et al. (2011) although some previous studies have reported contrasting observations. Shift in the manner women are predominantly advertised, is noted in some cases (Sirakaya & Sonmez 2000). Aligned with the previous domain, somewhat marginal results on ritualization of women are noted for the self-touching item although Iowa and Washington show 25% of their visuals with women in self-touching postures. Subtle association between the two geographic regions and the coding point is also confirmed by Chi Squared value of 19.169 (with a p value of $\pm$.05). Across the USA, only 18% of the images portray women in a self-touching posture contrary to findings reported by some of the previous studies (Chhabra & Johnston 2014; Kay et al. 2015; Lawton 2009; Sirakaya and Sonmez 2000). Men in self-touching posture are either non-existent or marginal. Difference of portrayal across some states illustrate possible interplay of different dynamics, for instance, in political and socio-cultural contexts and gendered nature of ownership/leadership (Aramendia-Muneta et al. 2020; Chhabra et al. 2011, 2014). Similar positive shift is highlighted by Miller (2014) in his scrutiny of images

portrayed on museum websites.

With regard to rank order of gender, insignificant relationship (confirmed by insignificant Chi Squared tests) exists between rank order and location. The majority of the images show both men and women in similar (active) roles. This is in contrast with reports from previous studies which show men in a leading role and women in a more docile role such as watching, and passively observing or just being around (Lawton 2009). Sirakaya and Sonmez (2000) had also reported that women were portrayed as more dependent on men. On the next coding point: gender depiction, neither gender is featured in a protective posture across the US. In comparing the images across different states, the number of images in this ritualized position is marginal. On the contrary, Chhabra et al. (2011) had noted that most photos in vacation guides, portrayed men in protective gesture. Armendia-Muneta et al. (2020) had also reported that men continue to be portrayed as central figures in online advertising. Peaceful relationship is the next coding point and it refers to calm expression. Calmness of expression is noted in both genders in 46% of the visuals; in women, it is noted in 41% of the images across US. These results depart from previous studies (Kay et al. 2015; Lawton 2009). Chhabra et al. (2011) also noted that more than 75% of the photos featured women with calm expressions. Sirakaya and Sonmez had shown similar results (71% of the images depicting women with calm expressions). Having said that, data from some states supports ritualization of women in this domain, to some extent. For instance, Washington and Iowa portrays 63% and 50% of the women with a calm expression respectively, followed by Florida and California. And across gender, New York portrays the highest percentage of visuals (almost 67%) followed by Arizona and Virginia.

Table 3 presents descriptive results of postures associated with subordination, gender detachment, and expressions. This study reports a substantial number of images (27%) of women with a bent knee posture, particularly in California, Iowa and Virginia. California depicts more than 50% of neither gender in this ritualized posture. Contrary to these results which show more slant towards objectification of women, Sirakaya and Sonmez (2000) had reported more men in this posture. This stance was also supported by Chhabra et al.'s study. With regard to the next coding point, it is interesting to note that majority of the visuals portray both man and women standing or sitting together. The chi squares tests also report insignificant values.

With regard to the next dimension, recline, both genders are shown as standing or sitting and women are not portrayed in a stereotype position. On the contrary, several studies show a substantial percentage of men standing next to sitting women (Armendia-Muneta et al. 2022;

Chhabra et al. 2011; Sirikaya and Sonmez 2000). Few studies have also reported similar posture by both genders (Chhabra and Johnston 2014). Approximately 26% of the images portray women in an erect and head held high pose although percentage of men in this dominating posture is much lower (at 13%). Almost 41% show neither gender in a dominating pose. Although statistically non-significant, the Washington State depicts the highest percentage of women in a domineering pose followed by Florida, California and Virginia. With regard to gender detachment, association between type of location and this coding point is found to be insignificant. That is, 95% of the images show neither sex nuzzling or hiding their mouth with their fingers. With regard to the lying deeper coding point, insignificant Chi Squared tests are noted. Equitable imageries are portrayed by Chhabra and Johnston (2014).

Table 3: Descriptives of Subordination, Gender Detachment and Expressions (%)

	NY	IA	WA	FL	CA	VA	AZ	Across
Subordinate								
Bent Knee								
of woman	22.2	25	21.1	17.9	37.9	24.1	18.6	27
of man					3.4	3.4	4.7	4
of both		12.5		23.1	6.9	18.8	14	14
of neither	77.8	62.5	78.9	59	51.7	58.6	62.8	64
Recline								
woman standing while man sits	11.1			5.1		3.4	4.7	6
man sitting while woman sits				5.1	6.9		4.7	6
both standing	33.3	50	36.8	23.1	55.2	37.9	53.5	41
both sitting	55.6	50	63.2	66.7	37.9	58.6	37.2	53
Body Erect & Head High								
woman	11.1	12.5	42.1	30.8	31	31	25.6	26
man			5.3	17.9	10.3	3.4	25.6	13
both	44.4	12.5	15.8	12.8	27.6	31	23.3	24
neither	44.4	75	36.8	38.5	31	34.5	25.6	41
Pictured on ground/floor/bed								
woman	22.2	25	15.8	35.9	20.7	17.2	20.9	23
man				5.1	6.9	3.4	4.7	6
both	22.2	25	31.6	23.1	17.2	31	11.6	23
neither	55.6	50	52.6	35.9	55.2	48.3	62.8	51
Gender Detachment								
Hiding the mouth with hands								
woman		12.5	5.3				2.3	27
man						3.4	2.3	4
both				2.6				14
neither	100	87.5	94.7	97.4	100	96.6	95.3	64

Lying Deeper								
woman	11.1	12.5	10.5	38.5	17.2	13.8	23.3	6
man					3.4	6.9	2.3	6
both		25	10.5	2.6	3.4	10.3	2.3	41
neither	88.9	62.5	78.9	59	75.9	69	72.1	53
Nuzzling								
woman nuzzles man							2.3	26
man nuzzles woman								13
both nuzzling	11.1				3.4		4.7	24
neither nuzzling	88.9	100	100	100	96.6	100	93	41

Next, as illustrated in Table 4, neither of the sexes are portrayed as smiling together in 57% of the visuals across the US and only 21% of the images show women as smiling followed by both smiling at 19%. Chi squared tests confirm significant association in smiling expressions based on the host state (Chi Squared value of 20.038 at p = $\pm$.05 level). Different social dynamics prevail at retreat centers as these are not family socialization spaces and are patronized for retreat programs that predominantly feature yoga and other wellness sessions/classes. Previous studies have noted that almost 50% or more of the examined images portray men and women smiling together thereby signaling a sense of connectedness between them (Chhabra et al. 2011; Chhabra and Johnston 2014; Sirakaya & Sonmez 2000). In viewing this coding point from a statewide perspective, evidence of connectedness is partially visible and the Washington State portrays the highest percentage (though not substantial) of smiling in the presence of men. Men alone pictures with a smiling expression are miniscule (Lawton 2009; Sirikaya & Sonmez 2000). While reporting majority of the women with smiling expressions, in their photos, Sirikaya and Sonmez write that "tourism advertisers may be using smiling female figures to lessen the tension inherent in selling, by displays of connection with others in the frame as well as with the implied reviewer" (2000, p. 358).

The next coding point is "serious expression" signaled by either men or women or both. This study shows that across the US, only 29% of the images signal women with a serious expression and 23% of the images show both with a serious expression. The remaining percentage of images portray neither gender in a serious demeanor. Contrary to this finding, Sirikaya and Sonmez (2000) had reported 66% of the photos of men carrying a serious expression. Further, a closer look at statewide results shows that Iowa and Washington portray a substantial percentage of women with serious expressions, followed by New York and Florida (almost one-third of the images). Arizona followed by Virginia and California signal majority

of the images with neither sex with a serious expression. Meager support, for serious expression by both genders, was reported by Chhabra et al. (2011) and Chhabra & Johnston (2014). Finally, with regard to mocking, 9% of the visuals across US show neither gender carry a mocking expression. As explained by Sirikaya and Sonmez, "depiction of individuals mocking one another includes chasing the other person (as if to show what one could do to the other)" and their study reported mockery by men in all the examined images (2000, p. 358). In this study, statewide comparison notes only a small percentage of serious expressions (11%) in men in the States of Arizona and New York (11%).

Table 4: Descriptives of Expressions (%)

	NY	IA	WA	FL	CA	VA	AZ	Across
Expressions								
Smiling								
woman	11.1	25	31.6	12.8	20.7	20.7	23.3	21
man					6.9	3.4	4.7	5
both	22.2	12.5	5.3	15.4	20.7	20.7	34.9	19
neither	66.7	62.5	63.2	71.8	51.7	55.2	34.9	57
Being Serious								
woman	33.3	37.5	36.8	33.3	24.1	20.7	16.2	29
man	11.1		5.3	7.7	6.9		11.6	8
both	22.2	25	26.3	17.9	24.1	31	11.6	23
neither	33.3	37.5	31.6	41	44.8	48.3	60.5	41
Mocking the Other								
woman								
man								
both					3.4			3
neither	100	100	100	100	96.6	100	100	99

Promotion Themes (overall and by gender of owners)

Based on the signature websites, overall promotional content is identified. Content analysis is used to glean recurring themes. Word clouds were generated with the help of ATLAS.ti software. The following themes emerge across US: healing, health, wellness, love, spiritual, harmony of body and mind, peace, focus on self, life enhancement through nature, close to nature and earth, relaxation, mindfulness, journey, community and us. Promotional content based on the gendered nature of ownership (female only, both genders, males only, and more than one female) is also segregated and content analyzed.

Approximately 55% of the retreat centers are owned and managed by women only, 19% are owned/managed by both genders and 26% are managed solely by a man. Evidently, women

play an important role in the management and showcasing of gender in 74% of the retreat centers. Based on the word cloud generated for centers owned/managed by women, key emerging themes are noted to be feelings, knowledge, femininity, and health. Feelings are related to a sense of connection, love, joy, divine, harmony, relaxation and a sense of purpose. Focus on learning is evidenced through the use of terms such as students, programs, practice, education, accreditation, helping and guiding. Focus on the feminine side of women, emphasizing powerfulness and beauty, is evident from the use of words such as goddess, divine and beautiful. Health is stressed through use of terms such as cancer, body, movement and fitness.

Recurrent themes emerging from centers owned/managed by men focus on health, alternative medicine, and spiritual/religion. Health refers to use of terms such as diet, movement, body, improvement and wellness. Advocacy of alternative medicine is evidenced through use of terms such as body work, ayurveda (a traditional Hindu system of medicine centered on the idea of harmony/balance in the body and use of appropriate diet, herbal remedies, and yogic breathing) and anahata (the heart chakra). The spiritual/religious theme is drawn from terms such as Buddhist, Sanskrit (ancient classical language of Hinduism in India) ashram (solitary abode of a Hindu priest; also refers to a religious or spiritual retreat), chakra (a Sanskrit term referring to a wheel or cycle), ceremonies and Dalai Lama (head monk of Tibetan Buddhism).

The following themes are gleaned based on the scrutiny of the word cloud from the centers owned/managed by both genders: nature, community, meditation/reflection, and the spiritual aspects of yoga. Nature is represented by terms such as air, garden, canyon, mountain, cliffs, fire, organic, granite, tree, beachfront, cliffs, fruit, land, river, earth, and lawn. Community refers to family, people, connectedness, and celebrations. Meditation/reflection theme is related to personal development, counseling, contemplation, and enlightenment. Spiritual aspects of yoga refer to chakras, connectedness, shamanic (beliefs and practices of indigenous people mostly belonging to Siberia and far-north parts of Europe), crystal healing, energy and awakened consciousness. These results suggest harmony between both yin and yang aspects of gender.

In comparing the themes based on ownership by one gender or both genders, it is noted that the promotional content of solely women owned retreat centers draws on emotional appeal, femininity (by stressing on beautification, a sense of powerfulness and superiority), learning and health. Health also features on the retreat centers which are solely owned by men. Also,

spiritual growth and alternative medicine options are promoted by male-owned centers. It is interesting to note enriching promotional content featured on the websites of centers owned jointly by both genders. Evidence of harmonious blend of yin and yang is noted such as promoting a sense of community, closeness to nature, meditation and other spiritual enrichment techniques.

It is likely that the nature of ownership has influenced the manner in which gender is profiled and portrayed. As discussed earlier, majority of the retreat centers are owned and managed by lifestyle entrepreneurs, that is, women entrepreneurs. For the most part, based on content analysis of promotional themes used at all retreat centers, strong traces of femvertising can be evidenced. It is noted that emphasis is more slanted towards promoting healthy lifestyles in a gender neutral manner. This can be attributed to the gender of the ownership: predominantly women alone, with a group of women or with a male partner. Programs in women-owned retreat centers also showcase messages that convey a sense of divinity, power and beauty. A balance of promotional content is noted in centers jointly owned by both genders; themes include gender mindfulness, appreciation of nature, building a sense of community, and spiritual enrichment. Given the strong role of women in the retreat centers, subtle objectification of women on websites of female-owned centers is surprisingly noted. Another key finding is that the centers owned by both genders are more likely to promote femvertising practices than their counterparts.

3. DISCUSSION

Demand for wellness tourism is soaring in the post-pandemic times. Top emerging trends suggest that the wellness industry is transforming into a booming industry with surging demand for restorative wellness programs that focus on preventive therapies, stress management, emotional harmony, and mindfulness (Hospitality Insights 2022). This study chronicles a shift towards gender equity in the online marketing content of retreat centers across several states in the United States, based on most of the coding points. Statistically significant differences based on location are noted with regard to height and smiling expression. In fact, the State of Iowa has been signaled for this slant towards gender bias in previous studies (Cayton & Gray2001; Chhabra et al. 2011; Rice and Coates 1995).

For instance, Chhabra et al. informed of stereotype images in the Midwest regions with regard to the following dimensions: reclining posture and smiling expression. Cayton and Gray (2001) had reported sluggish steps towards progress in women rights and higher status jobs.

Today, approximately 50% of the population in Iowa comprises of females. However, their year-round median earnings ($40,681) continue to be lower than men ($52,070) (Iowa Data Center 2022). In contrast, predominantly gender-neutral images are noted in eastern states such as Virginia and Florida. These states have made rapid progress in advocating for human rights and status jobs for women (Cayton & Gray 2001) and two decades later, this continuing trend is evidenced in the promotional content of the studied MSEs.

In scrutiny of the promotional content, which was delineated based on the owner's gender, egalitarian messages are commonly conveyed irrespective of ownership type; however, the centers owned solely by women promote femininity through expressions associated with divinity, beauty, and nurturing. They appear to celebrate womanliness, that is, attributes unique to women. Based on existing data, it is not possible to conclude that these expressions convey gender bias. A future study can conduct a survey for a deeper probe and examine femininity representations from a stereotyping standpoint. In summary, emerging trends show progress towards femvertising practices across United States and this study corroborates this point (Armendia-Muneta, Olarte-Pacual & Hatzithomas 2022). To some extent, the socio-economic changes and progress of women in their role as owners and managers/leaders can be attributed towards this prominent shift. Future studies need to explore if the nature of tourism spaces has an influence on how gender is portrayed; that is, whether all wellness spaces practice femvertising and egalitarian practices.

Implications

Scholarly work offering a critical gendered appraisal of tourism advertising materials is required in an ongoing manner (Chhabra et al. 2011; Chhabra & Johnston 2014; Sirakaya & Sonmez, 2000). A plethora of wellness and spiritual growth opportunities exist in retreat centers by mindfully and innovatively embracing femvertising attributes, both genders can become vehicles of social change (Becherer et al. 2012). Prosocial initiatives can reduce communication barriers and stimulate a sense of belonging and wellbeing which in turn holds potential to stimulate economic growth (Dias, Silva & Patuleia 2020).

Different dynamics shape the vision and marketing agenda of commercial businesses and government agencies in comparison to that of the microbusinesses; in fact, the microbusinesses are increasingly managed and/or owned by lifestyle entrepreneurs (particularly women).

Furthermore, wellness-centered microbusinesses possess more flexibility to effectively pursue femvertising practices. By embracing mindfulness and inclusive strategies, they can foster healthy and supportive social welfare practices (Franco & Prata 2019). This study is one of the few studies, in the tourism field, to draw comparisons between femvertising practices by ownership type and location. It examines some of the key features of femvertising such as showcasing women as equals, reducing objectification, and promoting them as leaders. The different coding points, employed in this study, mirror these facets. The principles of femvertising resonate with the notion of fair marketing practices such as reducing infantilization of women, thereby promoting unbiased social structures and holistic wellbeing.

Most studies on femvertising have focused on traditional media. In fact, research scrutinizing femvertising practices in different settings is at its infancy stage in the tourism and hospitality field. Wellness spaces offer a valuable context for scrutiny and identification of femvertising practices and gaps in wellness spaces can offer useful suggestions for pursuing responsible marketing strategies. As pointed out by Bhagwat, Warren, Beck & Watson (2020), Femvertising is a type of brand activism; this strategy can facilitate the retreat centers to use their wellness brand to express support for a social issue. Brands can carry meanings and inspire consumers to question stereotype expressions and values (Bhagwat et al. 2020).

Support mechanisms, such as women in leadership positions, are needed to foster femvertising practices. Women have been recognized as effective and fair leaders if they are offered access to support tools such as knowledge and other support resources (Kawira 2021; Shanmugathas 2021). They can flourish with male partners as this partnership holds potential to harmonize both genders, from social and health/wellness standpoints. Like other studies, this study has limitations. For the most part, the findings are descriptive. Although a stratified sampling technique was employed, based on selection of states from different geographic regions, sample was drawn from the list that appeared on the first three pages of the Google search engine. Undeniably, search engines are a key gateway to locate content; however, several studies have pointed to their biased structure (Eijk 2009). Manipulation of search can also occur, “either by the search engine or the informational providers who boost their ranking in the search results. Some search engines offer the opportunity of ‘buying’ a high position on the list of search results” (2009, p. 146). Future studies should employ multiple ways of locating wellness centers using, both

traditional methods and multiple search engines. Furthermore, onsite surveys/interviews of owners of retreat centers can offer deeper insights into their view, initiatives, and barriers associated with gender neutrality. These can help validate key findings and identify specific patterns with regard to barriers associated with femvertising.

Nevertheless, this study conveys some important messages. By examining the gendered nature of ownership from a femvertising standpoint, it makes an important contribution and can be used as a stepping stone to scrutinize other wellness spaces or settings. Ongoing scrutiny of promotional content (both visual and textual) offers deep insights into the manner the social structures are shifting and trending towards more 'egalitarian societal roles' (Aramendia-Muneta et al. 2019, p. 415). By opening up the wellness centers for scrutiny, this study can be used as a starting point to develop a femvertising model that offers a mindful and ethical pathway to eliminate gender bias.

Acknowledgement: The authors would like to extend their sincere thanks to anyone who contributed to this study.

Conflict of Interest: The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: This research was not supported by any institution.

References

Aitchison, C. (1999). New cultural geographies: The spatiality of leisure, gender and sexuality.*Leisure Studies*, 18, 19–39.

Åkestam, N., Rosengren, S., & Dahlen, M. (2017). Advertising "like a girl": Toward a better understanding of "femvertising" and its effects. Psychology & Marketing, 34(8), 795–806.

Alonso-Almeida, M. del M., & Bremser, K. (2015). Does gender specific decision making exist? *EuroMed Journal of Business*, 10(1), 47–65.

Aramendia-Muneta, M. E., Olarte-Pascual, C., & Hatzithomas, L. (2020). Gender stereotypes in original digital video advertising. *Journal of Gender Studies*, *29*(4), 403-419.

Backman, S. J., Huang, Y. C., Chen, C. C., Lee, H. Y., & Cheng, J. S. (2022). Engaging with restorative environments in wellness tourism. *Current Issues in Tourism*, 1-18.

Bartol, K., Martin, D., & Kromkowski, J. (2003). Leadership and the glass ceiling: Gender and ethnic group influences on leader behaviours at middle and executive managerial levels. *Journal of Leadership & Organizational Studies*, 9(3), 8–19.

Becherer, R., Helms, M. & McDonald, J. (2012). The effect of entrepreneurial marketing on outcome goals in SMEs. *New England Journal of Entrepreneurship*, *15*(1), 7-18.

Bell, P. & Milic, M. (2002). Goffman's gender advertisements revisited: Combining content analysis with semiotic analysis. *Visual communication*, *1*(2), 203-222.

Belingheri, P., Chiarello, F., Fronzetti Colladon, A., & Rovelli, P. (2021). Twenty years of gender equality research: A scoping review based on a new semantic indicator. *Plos one*, *16*(9), e0256474.

Bhagwat, Y., Warren, N., Beck, J. and Watson IV, F. (2020). Corporate sociopolitical activism and firm value. *Journal of Marketing*, Vol. *84* No. 5, pp. 1-21.

Braun, V. & Clarke, V. (2006) Using thematic analysis in psychology, Qualitative Research in Psychology, 3:2, 77-101, DOI: 10.1191/1478088706qp063oa

Brooks, T. (2018). *Ain't ia yogi?: A critical exploration of symbolic and social boundaries in theyoga world* (Doctoral dissertation, The University of North Carolina at Charlotte).

Cayton, A. R., & Gray, S. E. (Eds.). (2001). *The American midwest: Essays on regional history*. Indiana University Press.

Chhabra, D., Andereck, K., Yamanoi, K., & Plunkett, D. (2011). Gender equity and social marketing: An analysis of tourism advertisements. *Journal of Travel & Tourism Marketing*, 28(2), 111-128.

Chhabra, D., Andereck, K., Yamanoi, K., & Plunkett, D. (2009). Gender Depictions and LaggingEffects. *Anatolia*, 20(2), 456-461.

Chhabra, D., & Johnston, E. (2014). Dispelling gendered myths in tourism promotional materials: An upstream social marketing perspective. *Tourism Analysis*, *19*(6), 775-780.

Dias, Á., Patuleia, M., Silva, R., Estêvão, J., & González-Rodríguez, M. R. (2021). Post-pandemic recovery strategies: Revitalizing lifestyle entrepreneurship. *Journal of Policy Research in Tourism, Leisure and Events*, 1-18.

Dias, Á., Silva, G. M., Patuleia, M., & González-Rodríguez, M. R. (2020). Developing sustainable business models: Local knowledge acquisition and tourism lifestyle entrepreneurship. *Journal of Sustainable Tourism*, 1-20.

Dillette, A. K., Douglas, A. C., & Andrzejewski, C. (2021). Dimensions of holistic wellness as a result of international wellness tourism experiences. *Current Issues in Tourism*, *24*(6), 794-810.

Deslippe, P. (2018). 2018. The Swami Circuit: Mapping the Terrain of Early American Yoga.*Journal of Yoga Studies*, 1:5-44.

Eijk, N. V. (2009). Search engines, the new bottleneck for content access. In *Telecommunication Markets* (pp. 141-156). Physica, Heidelberg.

Ellemers, N. (2018). Gender stereotypes. Annual Review of Psychology, 69, 275–300.

Feng, Y., Chen, H., and He, L. (2019), "Consumer responses to femvertising: a data-mining case of dove's "campaign for real beauty" on YouTube", *Journal of Advertising*, Vol. 48 No. 3, pp. 292-301.

Franco, M. & Prata, M. (2019). Influence of the individual characteristics and personality traits of the founder on the performance of family SMEs. *European Journal of International Management*, *13*(1), 1-1.

Hatzithomas, L., Boutsouki, C., & Ziamou, P. (2016). A longitudinal analysis of the changing roles of gender in advertising: A content analysis of Super Bowl commercials. *International Journal of Advertising*, 35(5), 888–906.

Hoffman, B. (2011). Civil society 2.0? How the internet changes state–society relations in authoritarian regimes: the case of Cuba (GIGA working papers, No. 156). Retrieved from http://hdl.handle.net/10419/47847.

Hospitality Insights (2022). Hospitality Industry Trends. Retrieved on July 30 from: https://hospitalityinsights.ehl.edu/hospitality-industry-trends

Goffman, E. (1979). *Gender advertisements*. New York, NY: Harper & Row.

Iowa Data Center (2022). Women in Iowa. Retrieved from: www.iowadatacenter.org

Jack, S. & Anderson, A. (2002). The effects of embeddedness on the entrepreneurial process. *Journal of business Venturing*, *17*(5), 467-487.

Kang, M. E. (1997). The portrayal of women's images in magazine advertisements: Goffman's gender analysis revisited. *Sex roles*, *37*(11), 979-996.

Karn, S., & Swain, K. (2017). Health consciousness through wellness tourism: a new dimensionto new age travelers'. *African Journal of Hospitality, Tourism and Leisure*, *6*(3), 1-9.

Karyotaki, M., Bakola, L., Drigas, A., & Skianis, C. (2022). Women's Leadership via Digital Technology and Entrepreneurship in business and society. *Technium Soc. Sci. J.*, *28*, 246.

Kawira, K. D. (2021). The Effect of Product and Service Innovation on the Performance of Micro, Small and Medium Enterprises in Kenya. *Journal of Marketing and Communication*, *4*(1), 1-13.

Kay, M., Matuszek, C., & Munson, S. (2015). Unequal representation and gender stereotypes in image search results for occupations. In B. Begole & J. Kim (Eds.), CHI 2015. Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (pp. 3819–3828). Seoul: ACM.

Kourtesopoulou, A. & Chatzigianni, E. (2021). Gender Equality and Women's Entrepreneurial Leadership in Tourism: A Systematic Review. *Gender and Tourism*.

Kraus, S., Harms, R., & Fink, M. (2010). Entrepreneurial marketing: moving beyond marketing in new ventures. *International Journal of Entrepreneurship and Innovation Management*, *11*(1), 19-19.

Kyrousi, A. G., Panigyrakis, G. G., & Panopoulos, A. P. (2016). Attitudes toward ads portraying women in decorative roles and female competition: An evolutionary psychology perspective. *International Journal of Advertising*, 35(5), 771–798.

Kumar, A. & Taunk, A. (2013). Women in the field of advertising and their liking by the consumers in different role portrayals: A case study of Uttar Pradesh, India. *Unique Journal of Business Management Research*, 1(1), 1–7.

Kuratko, D. F. (2007). Entrepreneurial leadership in the 21st century. *Journal of Leadership & Organizational Studies*, 13(4), 1-11.

Kuratko, D. F., & Hodgetts, R. M. (2007). Entrepreneurship: Theory, process, practice
(7th ed.). Mason, OH: Thomson/South Western Publishing.

Lawton, E. (2009). Gender advertisements: replication of a classic work examining women, magazines, and facebook photographs. Retrieved on January 30, 2021: Honirs Thesis; Bryant University: Rhode Island.

Lindner, K. (2004). Images of women in general inter- est and fashion magazine advertisementsfrom 1955 to 2002. *Sex Roles*, 51, 409–421.

Massey, D. S. (2007). Categorically unequal: The American stratification system. New York, NY: Russell Sage Foundation

Michaelidou, N., Siamagka, N. T., Hatzithomas, L., & Chaput, L. (2022). Femvertising practices on social media: a comparison of luxury and non-luxury brands. *Journal of Product & Brand Management*, (ahead-of-print).

Miller, A. (2018). Yoga R/Evolution: Deconstructing the" Authentic" Yoga Body. University ofCalifornia, Davis.

Morgan, N., & Pritchard, A. (2018). Gender, advertising and ethics: Marketing Cuba. *Tourism Planning & Development*, *15*(3), 329-346.

Morrison, A. (2006). A contextualisation of entrepreneurship. International Journal of Entrepreneurial Behaviour and Research, 12(4), 192–209.

National Geographic (n.d.). United States Regions. Retrieved on July 25, 2022 from: https://education.nationalgeographic.org/resource/united-states-regions

Nguyen, C. P. (2021). Gender equality and economic complexity. *Economic Systems*, *45*(4), 100921.
Pan, S., & Ryan, C. (2007). Gender, framing and travel-ogues. Journal of Travel Research, 45,464–474.
Prieler, M., Ivanov, A., & Hagiwara, S. (2015). Gender representations in East Asian advertising: Hong Kong, Japan, and South Korea. Communication & Society, 28(1), 27–41.
Pollay, R. (1986). The Distorted Mirror: Reflections in the Unintended Consequences of Advertising. *Journal of Marketing*, 50: 18-19.
Pritchard, A. (2018). Predicting the next decade of tourism gender research. *Tourism management perspectives*, 25, 144-146.
Pritchard, A. & Morgan, N. (2000). Privileging the male gaze. Annals of Tourism Research,27(4), 884–905.
Ramkissoon, H. (2021). Pro-sociality in times of separation and loss. *Current Opinion in Psychology*.
Rice, T. W., & Coates, D. L. (1995). Gender role attitudes in the southern United States. *Gender & Society*, *9*(6), 744-756.
Robinson, R. N., & Beesley, L. G. (2010). Linkages between creativity and intention to quit: An occupational study of chefs. *Tourism Management*, *31*(6), 765-776.
Sadiku-Dushi, N., Dana, L. & Ramadani, V. (2019). Entrepreneurial marketing dimensions and SMEs performance. *Journal of Business Research, 100*(7), 86-99.
Sandybayev, A. (2015). Generating factors for female managers in the tourism sector of northern Cyprus. *International Journal of Research in Tourism and Hospitality*, 1(1), 23–28.
Sargent, K. (2017). Fat Shaming: Bias and Hiring in the Yoga and Fitness Industry? Negotiation, Conflict Resolution, & Peacebuilding, February 15. Carson, CA: CaliforniaState University
Scott, J. (1986). A useful category of historical analysis. *The American Historical Review*, 91(5),1053–1075.
Sirakaya, E. & Sonmez, S. (2000). Gender images in state tourism brochures: An overlooked area in socially responsible tourism marketing. *Journal of Travel Research*, 38, 353–362.
Tortajada, I., Arauna, N. & Martinez, I. (2013). Advertising stereotypes and gender representation in social networking sites. *Scientific Journal of Media Education*, 41(21), 177–186.
Vieru, M. (2015). Do tourism firms with female CEOs hold higher levels of cash? *Finnish Journal of Tourism Research*, 11(2), 24–44.
Walters, T. (2016). Using thematic analysis in tourism research. *Tourism Analysis*, *21*(1), 107-116.
Wang, C., Li, G., & Xu, H. (2019). Impact of lifestyle-oriented motivation on small tourism enterprises' social responsibility and performance. *Journal of Travel Research*, 58(7), 1146–1160.
Wang, S., Hung, K., & Huang, W. (2019). Motivations for entrepreneurship in the tourism and hospitality sector: A social cognitive theory perspective. *International Journal of Hospitality Management*, 78, 78–88.
Westwood, S., Pritchard, A. & Morgan, N. (2000). Gender-blind marketing: businesswomen'sperceptions of airline services. *Tourism Management*, 21(4), 353-362.
Williamson, J. (1978). *Decoding Advertisements*. London: Marion Boyars.Yoga in America Study. 2016. "Yoga in America Study Executive Summary: Conducted byYoga Journal & Yoga Alliance." Yoga Alliance, January 13. Retrieved November 27, 2018 (https://www.yogaalliance.org/2016yogainamericastudy).
Zalis, S. (2019). The future of masculinity: Overcoming stereotypes. Retrieved from https://www.forbes.com/sites/
shelleyzalis/2019/01/22/the-future-of-masculinity-overcoming-stereotypes/#a5be96b1af34

https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1174509

Int Journal Of Health Manag. And Tourism 2022, 7(3),288-304

JHMT Editorial

International Journal Of Health Management And Tourism

ASSOCIATIONS AMONG WORK PRODUCTIVITY, EMERGENCY-CARE UTILIZATION AND INDIVIDUAL FACTORS IN EMPLOYEES WITH CHRONIC DISEASES

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Received:13.09.2022
Accepted: 21.10.2022
Research Article

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Abstract

Aim: The aim of this study was to evaluate associations among work productivity, emergency-care utilization and individual factors regarding employees with chronic diseases by using mediation analysis.

Methods: This cross-sectional study involved 143 employees with chronic diseases. Data were collected with a questionnaire including questions and statements about healthcare utilization (emergency-care and hospitalization history), daily medication use, Work Productivity and Activity Impairment (WPAI) scale, State-Trait Anxiety Inventory (STAI) and Fear of inability to carry out duties. After preliminary analyses, potential mediators and independent variables were selected for WPAI subgroups. Then, mediation analyses were performed to clarify the relation between causal and outcome variables by applying a mediator variable describing the underlying mechanism.

Results: In Mediation analyses, Presenteeism score as an outcome variable was associated with the emergency-care service in the direct path (P=0.0000). Increases in T-STAI score was found to be a mediator for the Presenteeism score in the indirect path (P=0.0001).

Conclusion: Emergency-care utilization and increases in Trait-STAI scores were predictive factors for Presenteeism in employees with chronic diseases within the limits of the study.

Keywords: Employee, Chronic diseases, Work productivity, Presenteeism, Emergency-care utilization.

INTRODUCTION

Chronic diseases, being the most prevalent health issue, adversely influence the quality of life of the employees by diminishing their productivity at work and threatening their economic welfare. In terms of health policies, chronic diseases increase the financial burden on health services (Baptista et al., 2019; WHO, 2020). Two types of costs are incurred in health care. Direct costs cover medical expenses, medication expenditures, and hospitalization related to the treatment process depending on the employees' diseases. Indirect costs, on the other hand, comprise productivity losses generated by health conditions, such as disease and disability of the employees. Indirect costs have two major components, namely Absenteeism and Presenteeism. While the former refers to the time lost in the workplace because of employees' diseases, the latter refers to the loss of productivity in the workplace caused by the employees' diseases or health state (Zhang et al., 2016).

Since individual factors and disease-related conditions of employees have serious impact on work productivity and activity impairment, they could be considered as clues for the

improvement of disease management and health state (Basaran et al., 2020; Johns, 2010; Lohaus et al., 2019). Employees with chronic diseases could experience more Absenteeism and Presenteeism than those without a chronic disease (Johns, 2010; Rai et al., 2018; Zhang et al., 2016). Productivity loss caused by Presenteeism could be much greater than productivity loss generated by absenteeism and cause a decline in the efficiency of organizations (Adepoju et al., 2014; Edington et al., 2008; Hemp, 2004; Johns, 2010; Kirsten, 2008). Absenteeism of an employee can be regarded as an objective case that can be measured by calculating the hours of labor loss. However, employers can often define Presenteeism as reduced output, errors, and failure to meet production standards (Rhodes et al., 2015). Therefore, the quality of private life and work life of employees adversely affected by chronic diseases create a strain on the demand for health services, especially emergency-care as unscheduled visits (Hemp, 2004; Kim et al., 2017; Prasad et al., 2004).

The effort to ensure sustainability by using limited resources in the most efficient and effective way is the most fundamental problem in every organization. In this respect, it is of great importance to carefully consider factors related to Presenteeism in order to increase the efficiency of disease management, reduce burden caused by diseases or increase organizational efficiency (CHRODIS PLUS, 2020). Presenteeism as an indirect cost element is affected by different factors regarding chronic disease patterns, individual factors, and organizational policies. Therefore, clarifying relevant factors better is obligatory for organizations (Tsuji et al., 2018). These complex interactions are easily examined by a mediation analysis that assesses both direct and indirect effects of variables (Hayes, 2017).

Therefore, the aim of this study was to evaluate the association among work productivity, healthcare utilization and individual factors regarding employees with chronic diseases by using mediation analysis.

1. RESEARCH METHODOLOGY

The cross-sectional study was carried out at the Municipality of Kocaeli, which is a primary industrial zone of Turkey (Basaran et al., 2020). One hundred forty-three employees working in office environment at the Municipality (n=143, F/M: 21/122, mean age: 44.75±6.94 years) were included in the study. The main criteria for inclusion were volunteering to join the study and having at least one chronic disease. The response rate in the study was 22.44 % of the number of staff

working in the organization. The distribution of chronic diseases was shown in Table 1. No physical disability was detected among participants. None of them was a healthcare worker.

Table 1. The Distribution of Chronic Diseases in the Study Group

	n	(%)
Diabetes mellitus	40	(28)
Cardiovascular disease	34	(24)
Pulmonary disease	17	(12)
Musculoskeletal disease	15	(11)
Thyroid gland malfunction	13	(9)
Allergic rhinitis and sinusitis	6	(4)
Kidney disease	6	(4)
Neurologic diseases	9	(6)
Hematological disease	5	(4)
Skin diseases	5	(4)
Gastrointestinal diseases	4	(3)
Cancer	3	(2)
Reproductive health problems	3	(2)
Psychiatric problems	2	(1)

Data were collected by a structured questionnaire including socio-demographic properties, diagnoses of chronic diseases, duration of the disease, utilization of healthcare (emergency-care and hospitalization history), medication, sleep disorders, self-reported health state (poor vs good), and smoking habits (current smoker vs non-smoker), Work Productivity and Activity Impairment Scale (WPAI) and State-Trait Anxiety Inventory (STAI) in the study (Table 2). In addition, employees coded their 'Fear of failure to carry out their duties/responsibilities' (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). High scores in these scales indicate that chronic illnesses adversely affect the employees.

Employees reported that the reason for accessing the emergency-care in order to stabilize their medical conditions was because of the acute episodes of their chronic diseases. Employees with sleep disorders also received medical support for this problem. These data were confirmed by the occupational health professional in the organization.

Work Productivity and Activity Impairment Scale (WPAI) is a 6-item instrument to measure impairment during the last seven days in the patients' paid and regular daily activities.

Scores of four main subgroups regarding '*Absenteeism (work time missed)'*, '*Presenteeism (work time lost due to impairment at work)'*, *'Total work impairment'*, and '*Daily activity impairment'* were calculated (M. C. Reilly et al., 1993).

WPAI outcomes are expressed as impairment rates, with higher numbers indicating greater impairment and less productivity, i.e., worse outcomes, as follows (Karacayli et al., 2022; Mumcu et al., 2017; Mumcu et al., 2020; M. Reilly, 2022; M. C. Reilly et al., 1993; Zhang et al., 2010; Zhang et al., 2016):

The WPAI consists of six questions: Q1= currently employed; Q2= hours missed due to health problems; Q3 = hours missed for other reasons; Q4 = hours actually worked; Q5 = degree of health- affected productivity while working (using a 0 to 10 Visual Analogue Scale (VAS)); Q6 = degree of health-affected productivity in regular daily activities (VAS).

Four main outcomes can be drawn from the WPAI and expressed in percentages by multiplying the following scores by 100:

Rate of work time missed due to health problems: Q2/(Q2+Q4)

Health Impairment effect rate on work done :Q5/10

Health Impairment effect rate on overall work: Q2/(Q2+Q4)+[(1-(Q2/(Q2+Q4)))x(Q5/10)]

Health impairment effect rate on daily activities:Q6/10

State-Trait Anxiety Scale includes 20 items scored on four intensity levels of anxiety. The State Anxiety Scale (S-STAI) evaluates the present state of anxiety, whereas the Trait Anxiety Scale (T-STAI) reflects anxiety susceptibility of individuals. An increased score indicates a high level of anxiety. Validity and reliability study of the Turkish form of the scale was performed by Öner and Le Compte. Permission for the Turkish STAI form was obtained (Öner, 1985).

WPAI questions from 1-4 of are not suitable for reliability analysis. Since Cronbach-Alpha values were 0,90 for the last two items using the same scoring method in the WPAI questionnaire, 0,91 for State-STAI and 0,87 for Trait-STAI, internal reliabilities were high for both indices.

The study was approved by the Ethics Committee of the Marmara University Health Sciences Institute (15.10.2018-188) and informed prior consent was given by all the participants. Written permission was obtained from the institution where the study was conducted.

Data were analyzed using SPSS 26.0 statistical program. Mann-Whitney U test, Kruskal Wallis test, and Spearman correlation tests were carried out due to the non-normal distribution of data in the preliminary analysis.

In the study, PROCESS Macro was adapted in SPSS 26.0 for the Mediation analysis (Hayes, 2017). WPAI subgroups as dependent variables were compared according to gender, sleep disorders approved by physicians, smoking habits, need for emergency-care utilization, hospitalization history and self-reported general health state (Table 3). Then, possible mediators were selected according to the results of statistical analyses (Table 4). The relations among scores of WPAI domains and State-STAI, Trait-STAI, fear of inability to work and disease-related factors regarding the number of medication and disease duration were assessed (Table 4). These variables were considered as potential mediators. In the conceptual framework of the Mediation analysis, WPAI subgroups were selected as dependent variables. Besides, healthcare utilization defined as emergency-care utilization (1: present vs 2: absent) and hospitalisation history (1: present vs 2: absent) related factors were selected as independent variables. Furthermore, individual factors regarding sleep disorders, self-reported general health state, anxiety level (S-STAI and T-STAI), duration of the disease or disorder (in years), use of medication and fear of inability to work were possible mediators in this framework.

After multiple mediation analyses were carried out in each sub-group by applying these variables, the most significant variables and mediators were selected for the final mediation analyses in each WPAI subgroups. Moreover, a bootstrap re-sample method was also used to test the mediation effect. Thus, the significance of the results was also interpreted by examining 5000 samples, each of which has the same size as the original data set.

2.FINDINGS

The profile of the employees has been presented in Table 2. Seventy-eight percent of the employees (n=112) had one chronic disease; whereas, the others had two or more chronic diseases. The mean disease duration was 9.17±9.50 years in the study group. Less than half of the group were current smokers (*n*=61, 43%) and had poor health condition (*n*=67, 47%). Utilization of emergency-care during the last year was observed in 27% (n=39) of the group. Hospitalization was seen in 15% (n=21) of the group (Table 2). The mean hospitalization duration was found to be 7.10±12.97 days. In addition, occurrence of medications (1.72±0.88) was significantly higher in employees who needed emergency-care (2.02±0.99) when compared to others (1.57±0.78) (P=0.014).

Table 2. The Profiles of Employees with Chronic Diseases

		n	(%)
Gender	Male	122	(85)
	Female	21	(15)
Marital status	Married	119	(83)
	Single	24	(17)
Number of chronic diseases	1	112	(78)
	≥2	31	(22)
Smoking habits	Current smoker	61	(43)
	Non-smoker	82	(57)
Self-reported general state of health	Good	76	(53)
	Poor	67	(47)
Sleep disorders	Present	49	(34)
	Absent	94	(66)
Emergency-care utilization	Yes	39	(27)
	No	104	(73)
Hospitalization history	Hospitalized	21	(15)
	Non-hospitalized	122	(85)
		Mean	**SD**
Age (years)		44.75	6.94
Education level (years)		8.34	3.90
Disease duration (years)		9.17	9.50
Number of medication/per day		1.72	0.88
WPAI Subgroups			
Absenteeism		3.55	6.98
Presenteeism		19.02	21.41
Overall work impairment		21.15	22.79
Daily activity impairment		23.08	25.18
STAI			
Trait-STAI		37.06	9.54
State-STAI		40.15	8.36
Fear of inability to carry out duties/responsibilities		1.63	0.92

The mean percentages of WPAI subgroups were between 3.55±6.98 (Absenteeism) and 23.08±25.18 (Daily activity impairment). The mean scores of S-STAI, T-Trait, and 'Fear of failure to carry out duties' were 37.06±9.54; 40.15±8.36 and 1.63±0.92 in the group (Table 2). Age was not correlated with subgroup scores of WPAI and STAI, and neither was fear of failure to carry out duties (P>0.05).

The scores of Absenteeism, Presenteeism, and Overall work impairment were substantially higher in the emergency-care utilization, hospitalization history, and self-reported poor health state sub-groups than others (P<0.05). Employees with sleep disorders had low scores of Presenteeism and Overall work impairment compared to others (P=0.015 and P=0.042, respectively) (Table 3).

Trait-STAI scores of these employees (42.36±8.61) were significantly higher than those of the employees without sleep disorders (38.93±8.01)(p=0.009).

In the study group, the score of Daily activity impairment was associated with emergency-care utilization and poor general health state (*P*=0.000 for both). Subgroup scores of WPAI were similar in accordance with gender and smoking habits (*P*>0.05) (Table 3). The number of medications was related to scores of Presenteeism, overall work impairment, and Daily activity impairment (*P*<0.05). In addition, disease duration was associated with both Presenteeism and Daily activity impairment (*P*<0.05) (Table 4).

All subgroups of WPAI were correlated with Fear of failure to carry out duties among the participants (*P*<0.05). The mean scores of S-STAI and T-STAI were correlated with scores of Presenteeism, Overall work impairment, and Daily activity impairment (*P*<0.05) (Table 4). Different combinations were seen among chronic diseases, and the number of the same chronic diseases was particularly low. Therefore, the analysis was carried out on a limited number of employees according to the prevalence of chronic diseases. Scores of WPAI domains of employees with isolated diabetes mellitus (n=27) were similar in patients with isolated cardiovascular disease (n=25)(P=0.738 for Absenteeism, P=0.490 for Presenteeism, P=0.748 for Overall impairment and P=0.10 for Daily activity impairment).

In isolated cardiovascular disease (n=25), scores of Absenteeism and Daily activity impairment were substantially higher in the patient group who needed emergency-care utilization (n=10) than the others (n=15)(P=0.016, P=0.043). Scores of Presenteeism and Overall impairment were correlated with score of 'Fear of inability to carry out duties/responsibilities' (ρ: 0.46 *P*=0.022; ρ: 0.47 *P*=0.022)

Table 3. WPAI Subgroups according to Gender, Sleep disorders, Self-Reported Health State and Healthcare Utilization

		Absenteeism			Presenteeism			Overall work impairment			Daily activity impairment		
		Mean	**SD**	***P***	**Mean**	**SD**	***P***	**Mean**	**SD**	***P***	**Mean**	**SD**	***P***
Gender	Female	3.45	6.82	0.918	21.90	22.50	0.428	24.01	23.23	0.462	28.1	26.95	0.271
	Male	3.56	7.03		18.52	21.27		20.66	22.78		22.21	24.88	
Sleep disorders	Present	2.64	4.87	0.678	23.47	20.47	**0.015***	24.91	21.33	**0.042***	26.94	25.76	0.113
	Absent	4.02	7.84		16.70	21.62		19.19	23.39		21.06	24.78	
Smoking habits	Current smoker	3.32	6.22	0.863	21.64	21.31	0.083	23.50	22.72	0.148	26.72	24.95	0.059
	Non-smoker	3.72	7.52		17.97	21.40		19.40	22.82		20.37	25.16	
Emergency-care utilization	Yes	6.81	7.57	**0.000*****	34.87	24.80	**0.000*****	38.42	25.13	**0.000*****	38.97	28.54	**0.000*****
	No	2.33	6.36		13.08	16.55		14.67	18.10		17.12	21.03	
Hospitalization history	Hospitalized	8.06	9.33	**0.003****	30.95	24.88	**0.006****	34.97	26.63	**0.005****	31.90	28.39	0.069
	Non-hospitalized	2.77	6.22		16.97	20.16		18.77	21.30		21.56	24.39	
Self-reported general health state	Good	2.40	6.57	**0.006****	9.74	13.95	**0.000*****	11.66	15.64	**0.000*****	11.84	17.34	**0.000*****
	Poor	4.85	7.24		29.55	23.51		31.91	24.87		35.82	26.69	

Mann-Whitney U test was used in the analysis. *P<0.05, **P<0.01, ***P<0.001

Table 4. WPAI Sub-groups Related Variables in the Study Group

	Absenteeism		Presenteeism		Overall work impairment		Daily activity impairment	
	ρ	***P***	ρ	***P***	ρ	***P***	ρ	***P***
State-STAI	0.16	0.057	0.29	**0.000*****	0.27	**0.001*****	0.39	**0.000*****
Trait-STAI	0.15	0.057	0.30	**0.000*****	0.27	**0.001*****	0.39	**0.000*****
Disease duration (years)	0.05	0.530	0.19	**0.023***	0.14	0.079	0.23	**0.005****
Number of medication/days	0.07	0.508	0.37	**0.000*****	0.34	**0.000*****	0.23	**0.017***
Fear of inability to carry out duties/responsibilities	0.36	**0.000*****	0.46	**0.000*****	0.46	**0.000*****	0.42	**0.000*****

**P<0.05, **P<0.01, ***P<0.000*

In isolated diabetes mellitus (n=27), Daily activity impairment score was correlated with the score of 'Fear of inability to carry out duties/responsibilities' (ρ: 0.47 *P*=0.013). WPAI scores could not be compared to emergency-care utilization because the number of patients who needed emergency-care was low in this group of patients (n=2).

According to mediation analysis; WPAI sub-groups regarding Absenteeism, Presenteeism, Overall impairment and Daily activity impairment were associated with the Emergency-care utilization in the direct path (*P*<0.05) (Table 5) (Figure 1a-1d). In the indirect path, 'Fear of inability of an employee to carry out the duties' as a mediator for Absenteeism (*P*=0.0041) (Figure 1a). Increases in T-STAI Score was found to be a mediator for both 'Presenteeism' (Figure 1b) and 'Overall Impairment' (Figure 1c) (*P*=0.0001 for both). In addition, Daily activity impairment was associated with long disease duration as a mediator (*P*=0.0102) (Figure 1d) (Figure 1) (Table 5).

Table 5. Mediation Analyses for WPAI Subgroups in Employees with Chronic Diseases

	B	**SE**	***T***	***P***	**LLCI**	**ULCI**
WPAI-Absenteeism						
Constant	0.0561	0.0293	19.154	0.0575	0.0018	0.1140
Emergency-care utilization	-0.0298	0.0133	-2.2395	**0.0267**	-0.0561	-0.0035
Fear of inability to carry out duties/responsibilities	0.0189	0.0065	2.9216	**0.0041**	0.0061	0.0318
WPAI-Presenteeism						
Constant	0.2006	0.1076	1.8648	0.0643	-0.0121	0.4133
Emergency-care utilization	-0.1850	0.0350	-5.2918	**0.0000**	-0.2541	-0.1159
T-STAI	0.0077	0.0019	4.1210	**0.0001**	0.0040	0.0114
WPAI-Overall work impairment						
Constant	0.2347	0.1139	2.0609	0.0412	0.0095	0.4598
Emergency-care utilization	-0.2027	0.0370	-5.4774	**0.0000**	-0.2759	-0.1295
T-STAI	0.0081	0.0020	4.1173	**0.0001**	0.0042	0.0121
WPAI-Daily activity impairment						
Constant	0.5133	0.0847	6.0597	0.0000	0.3459	0.6808
Emergency-care utilization	-0.1922	0.0440	-4.3650	**0.0000**	-0.2793	-0.1052
Disease duration	0.0054	0.0021	2.6046	**0.0102**	0.0013	0.0095

LLCI, Lower level confidence interval; ULCI, upper level confidence interval

A bootstrap analysis with 5000 replications was also applied to estimate the effects of mediation to generate 95% CI (Confidence interval). According to the percentile, bootstrap of mediators were

effective mediators on dependent variables. However, similar relations relevant to hospitalisation were not found.

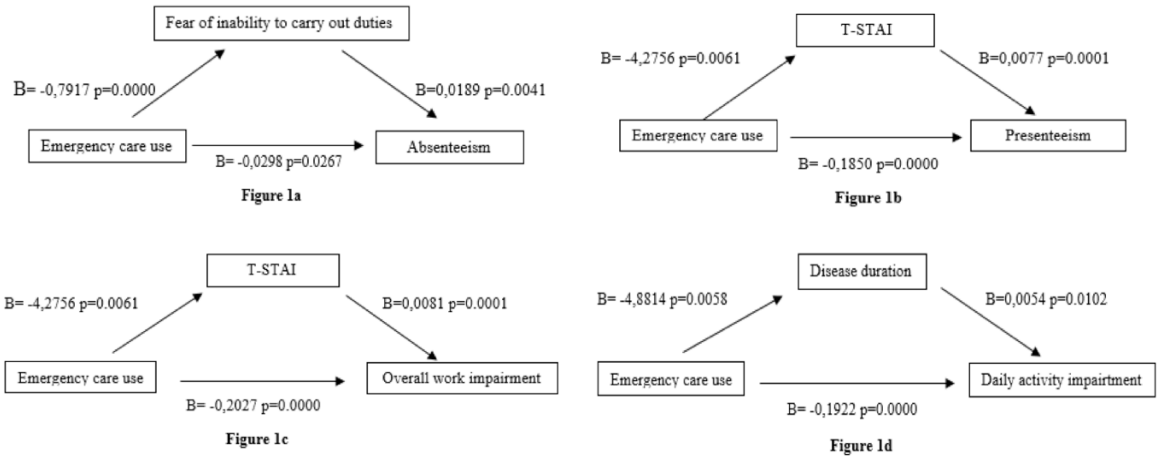

Figure 1. Mediation Analyses of WPAI Subgroups
Figure 1a. Mediation analysis of WPAI- Absenteeism
Figure 1b. Mediation analysis of WPAI- Presenteeism
Figure 1c. Mediation analysis of WPAI- Overall work impairment
Figure 1d. Mediation analysis of WPAI- Daily activity impairment

3. CONCLUSIONS AND RECOMMENDATIONS

Since chronic diseases, being one of the most persistent health problems, affect employees who have an active role in work-life, they prove to be obstructive for organizations due to their economic impact (Silvaggi et al., 2019; WHO, 2020). With this issue in mind, this study aimed to evaluate the relations among work productivity, emergency-care utilization and individual factors regarding employees with chronic diseases by using mediation analysis.

In our study, 'Emergency- care utilization' and 'Hospitalization history' during the last year and 'Self-reported poor health state' were related to 'Absenteeism', 'Presenteeism', and 'Overall work and Daily activity impairment'. In addition, the need for emergency-care was directly associated with all the subgroups of the WPAI questionnaire in the mediator analysis. Uncontrolled symptoms are associated with several unplanned/unscheduled emergency examinations or hospitalization in connection with the risk of mortality and/or morbidity in chronic diseases (CDC, 2020; CHRODIS PLUS, 2020; Mumcu et al., 2017; Mumcu et al., 2020). The occurrence of productivity loss in an organisation where employees needed emergency-care and

hospitalization was inevitable. Productivity losses lead to significant costs in organizations (Adepoju et al., 2014; CDC, 2020; Edington et al., 2008; Fouad et al., 2017; Mumcu et al., 2017; Mumcu et al., 2020; Nakata et al., 2018; Zhang et al., 2016). 'Absenteeism' is frequently used for the evaluation of productivity loss; whereas, 'Presenteeism' is not simply measurable in organizations. Therefore, focusing on 'Presenteeism' gave critical clues for the organisation in the study. Impairment of daily life is also predicted in these circumstances (Mumcu et al., 2017). Therefore, with the help of health education programs and regular medical visits, employees could ensure a healthy life state (Fouad et al., 2017).

In the study group, sleep disorders were found to be associated with Presenteeism and Overall impairment. Increase in Trait-STAI scores were observed in the group of employees with sleep disorders. Since absence from work and lower work performance as well as increase in healthcare costs are observed in the employee group with sleep disorders (Hui et al., 2015), the management of sleep disorder and anxiety level ease the working life of employees.

Rise in scores of T-STAI as a mediator, S-STAI and the 'Fear of failure to carry out duties/responsibilities' and increased number of daily medications were correlated with the worsening of Presenteeism and Overall impairment. In addition, disease duration was associated with Presenteeism. Close relation is observed between productivity loss and work-related stress (Hassard et al., 2018) because employees with chronic diseases may suffer time constraints more, workload and high job demands. Therefore, increases in the stress level, anxiety and depression could be predictable as employees are expected to do the same amount of work with less functional capacity in the workplace (Kirsten, 2008; Lerner et al., 2004; Mumcu et al., 2017; Mumcu et al., 2020; Silvaggi et al., 2019; Smith et al., 2012; Tsuji et al., 2018).

Increase in the number of negative experiences in the work environment could not be managed in long-lasting diseases. Besides, increase in the number of medications per day is associated with the course of the disease (Mumcu et al., 2020; Nakata et al., 2018). At this point, employees receiving support in coping with the course of their disease can keep up with their work-life efficiently (Detaille et al., 2009).

Absenteeism was found to be related to the 'Fear of failure to carry out duties/responsibilities'. Employees with chronic diseases experience more Absenteeism than healthy employees, and lose their jobs in the organizations they are working. (Fouad et al., 2017; Johns, 2010; Rai et al., 2018; Zhang et al., 2016). Therefore, occupational health professionals could help to improve their health

conditions, to maintain income levels (Vooijs et al., 2018) and to change working conditions with decreasing Absenteeism (Varekamp et al., 2010). The framework of the European Union Joint Action 'CHRODIS Plus: Good Practices for Chronic Diseases' (CHRODIS PLUS, 2020) aims to encourage the establishment of supportive workplaces for employees with chronic diseases and to eliminate Absenteeism, Presenteeism, and early retirement (Silvaggi et al., 2019).

The increase in STAI scores (T-STAI and S-STAI), the number of medications, 'Fear of inability to carry out duties/responsibilities' and long disease durations were associated with the Daily activity impairment. Patients with chronic diseases who require medical attention to avoid mortality and morbidity (CDC, 2020) are affected severely (Bronckers et al., 2019). Therefore, it was predicted that this ongoing process would affect daily life adversely.

Diabetes mellitus and cardiovascular disease had similar scores of WPAI subgroups. Emergency-care utilization was also associated with Presenteeism and Overall impairment of patients with cardiovascular disease. 'Fear of inability to carry out duties/responsibilities' was associated with poor Presenteeism and Overall impairment in cardiovascular disease and daily activity impairment in diabetes mellitus. Self-management programs and elective targeted interventions could help employees for better disease management (Adepoju et al., 2014). Therefore, occupational health professionals as mentors in organizations (Redfern et al., 2018) could organize efficient personal intervention programs to improve the physical health and well-being of employees as well as to create a favourable and supportive work environment (Bose, 2013; Varekamp et al., 2010; Vooijs et al., 2018). In addition, employees with chronic diseases should be encouraged to have regular health check-ups to ensure the stability of health state and work life.

Since presenteeism is explained by reduced output, increase in errors, and failure to meet production standards in organizations (Rhodes et al., 2015), it is a hidden risk factor and cost element for organizations. Different methods are used to evaluate work productivity (Prasad et al., 2004). In the present study, Presenteeism was evaluated by using WPAI that was found to be a reliable tool for a 7-day period. Since four sub-groups of the WPAI questionnaire are calculated by 6 questions, it is an easy-to-use and well-accepted tool for measuring Presenteeism in studies (M. C. Reilly et al., 1993). Similarly, the WPAI questionnaire was found to be a reliable tool with a high Cronbach-Alpha value in the present study. In addition, the questionnaire provided reliable

data about Presenteeism that could not be measured easily in organizations. (Fouad et al., 2017; Kirsten, 2008)

Productivity loss could be a variable among specific chronic diseases (Adepoju et al., 2014; Kim et al., 2017; Mumcu et al., 2017; Mumcu et al., 2020; Nakata et al., 2018). Occupational health professionals could calculate the financial burden of chronic diseases at individual levels by using WPAI scale and help employees more effectively.

On the other hand, the study had some limitations, such as data having been collected from a sole organization and the number of volunteer participants being rather low. Therefore, the results reflect only this sample group. Moreover, the economic value of productivity cost was not calculated by using raw estimates (hours×hourly wage) because employees did not want to share their income levels. However, it provided global insight and clues on impairment of work-life and private life among employees with chronic diseases at an organizational level.

In conclusion, emergency-care utilization and increases in Trait-STAI scores were predictive factors for Presenteeism in the employee group with chronic diseases. These factors could be considered as clues for health professionals to assist employees for the improvement of productivity

Conflict of Interest: The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: This research was not supported by any institution.

References

Adepoju, O. E., Bolin, J. N., Ohsfeldt, R. L., Phillips, C. D., Zhao, H., Ory, M. G., and Forjuoh, S. N. (2014). Can chronic disease management programs for patients with type 2 diabetes reduce productivity-related indirect costs of the disease? Evidence from a randomized controlled trial. *Popul Health Manag, 17*(2), 112-120. doi:10.1089/pop.2013.0029

Baptista, M. C., Burton, W. N., Nahas, A. K., Wang, Y. P., Viana, M. C., and Andrade, L. H. (2019). Absenteeism and Presenteeism Associated With Common Health Conditions in Brazilian Workers. *J Occup Environ Med, 61*(4), 303-313. doi:10.1097/JOM.0000000000001538

Basaran, B., Soylu, G. N., and Yilmaz Civan, M. (2020). Concentration of phthalate esters in indoor and outdoor dust in Kocaeli, Turkey: implications for human exposure and risk. *Environ Sci Pollut Res Int, 27*(2), 1808-1824. doi:10.1007/s11356-019-06815-2

Bose, J. (2013). Promoting successful diabetes management in the workplace. *International Journal of Workplace Health Management, 6*(3), 205-226. doi:10.1108/IJWHM-11-2010-0037

Bronckers, I., van Geel, M. J., van de Kerkhof, P. C. M., de Jong, E., and Seyger, M. M. B. (2019). A cross-sectional study in young adults with psoriasis: potential determining factors in quality of life, life course and work productivity. *J Dermatolog Treat, 30*(3), 208-215. doi:10.1080/09546634.2018.1506077

CDC. (2020). Center for Disease Control and Prevention. Chronic diseases. *https://www.cdc.gov/chronicdisease/about/index.htm (Accessed 15 August 2020)*.

CHRODIS PLUS. (2020). CHRODIS PLUS Joint Action, European Union, in the framework of the Health Programme. *http://chrodis.eu/ (Accessed 22 April 2020)*.

Detaille, S. I., Heerkens, Y. F., Engels, J. A., van der Gulden, J. W., and van Dijk, F. J. (2009). Common prognostic factors of work disability among employees with a chronic somatic disease: a systematic review of cohort studies. *Scand J Work Environ Health, 35*(4), 261-281. doi:10.5271/sjweh.1337

Edington, D. W., and Schultz, A. B. (2008). The total value of health: a review of literature. *International Journal of Workplace Health Management, 1*(1), 8-19. doi:10.1108/17538350810865569

Fouad, A. M., Waheed, A., Gamal, A., Amer, S. A., Abdellah, R. F., and Shebl, F. M. (2017). Effect of Chronic Diseases on Work Productivity: A Propensity Score Analysis. *J Occup Environ Med, 59*(5), 480-485. doi:10.1097/JOM.0000000000000981

Hassard, J., Teoh, K. R. H., Visockaite, G., Dewe, P., and Cox, T. (2018). The cost of work-related stress to society: A systematic review. *J Occup Health Psychol, 23*(1), 1-17. doi:10.1037/ocp0000069

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*: Guilford publications.

Hemp, P. (2004). Presenteeism: at work--but out of it. *Harv Bus Rev, 82*(10), 49-58, 155. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/15559575

Hui, S. K., and Grandner, M. A. (2015). Trouble Sleeping Associated With Lower Work Performance and Greater Health Care Costs: Longitudinal Data From Kansas State Employee Wellness Program. *J Occup Environ Med, 57*(10), 1031-1038. doi:10.1097/JOM.0000000000000534

Johns, G. (2010). Presenteeism in the workplace: A review and research agenda. *Journal of Organizational Behavior, 31* 519–542. doi:10.1002/job.630

Karacayli, U., Adesanya, A., Aksoy, A., Belem, J., Cardin, N. B., Sarı, F. B., . . . Mumcu, G. (2022). The assessment of presenteeism and activity impairment in Behçet's syndrome and recurrent aphthous stomatitis: a multicentre study. *Rheumatology (Oxford), 61*(4), 1538-1547. doi:10.1093/rheumatology/keab581

Kim, D., Kaneko, Y., and Takeuchi, T. (2017). Importance of Obtaining Remission for Work Productivity and Activity of Patients with Rheumatoid Arthritis. *J Rheumatol, 44*(8), 1112-1117. doi:10.3899/jrheum.161404

Kirsten, W. (2008). Health and productivity management in Europe. *International Journal of Workplace Health Management, 1*(2), 136-144. doi:10.1108/17538350810893928

Lerner, D., Adler, D. A., Chang, H., Berndt, E. R., Irish, J. T., Lapitsky, L., . . . Rogers, W. H. (2004). The clinical and occupational correlates of work productivity loss among employed patients with depression. *J Occup Environ Med, 46*(6 Suppl), S46-55. doi:10.1097/01.jom.0000126684.82825.0a

Lohaus, D., and Habermann, W. (2019). Presenteeism: A review and research directions. *Human Resource Management Review, 29*(1), 43-58. doi:https://doi.org/10.1016/j.hrmr.2018.02.010

Mumcu, G., Lehimci, F., Fidan, O., Guk, H., Alpar, U., Unal, A. U., . . . Direskeneli, R. H. (2017). The assessment of work productivity and activity impairment in Behcet's disease. *Turk J Med Sci, 47*(2), 535-541. doi:10.3906/sag-1603-161

Mumcu, G., Yay, M., Aksoy, A., Tas, M. N., Armagan, B., Sari, A., . . . Direskeneli, H. (2020). Predictive factors for work-day loss in Behcet's syndrome: A multi-center study. *Int J Rheum Dis, 23*(2), 240-246. doi:10.1111/1756-185X.13771

Nakata, K., Tsuji, T., Vietri, J., and Jaffe, D. H. (2018). Work impairment, osteoarthritis, and health-related quality of life among employees in Japan. *Health Qual Life Outcomes, 16*(1), 64. doi:10.1186/s12955-018-0896-9

Öner N, L. W. (1985). State-trait anxiety inventory handbook. *Boğaziçi University Publications*.

Prasad, M., Wahlqvist, P., Shikiar, R., and Shih, Y. C. (2004). A review of self-report instruments measuring health-related work productivity: a patient-reported outcomes perspective. *Pharmacoeconomics, 22*(4), 225-244. doi:10.2165/00019053-200422040-00002

Rai, K. K., Adab, P., Ayres, J. G., and Jordan, R. E. (2018). Systematic review: chronic obstructive pulmonary disease and work-related outcomes. *Occup Med (Lond), 68*(2), 99-108. doi:10.1093/occmed/kqy012

Redfern, N., and Macphee, G. J. A. (2018). Mentoring in occupational medicine: where might it fit in? *Occup Med (Lond), 68*(7), 425-427. doi:10.1093/occmed/kqy100

Reilly, M. (2022). Retrieved from http://www.reillyassociates.net/WPAI_GH.html (Access date: 16th October 2022)

Reilly, M. C., Zbrozek, A. S., and Dukes, E. M. (1993). The validity and reproducibility of a work productivity and activity impairment instrument. *Pharmacoeconomics, 4*(5), 353-365. doi:10.2165/00019053-199304050-00006

Rhodes, S. M., and Collins, S. K. (2015). The Organizational Impact of Presenteeism. *Radiol Manage, 37*(5), 27-32; quiz 33-24. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/26571971

Silvaggi, F., Leonardi, M., Guastafierro, E., Quintas, R., Toppo, C., Foucaud, J., . . . Scaratti, C. (2019). Chronic Diseases & Employment: An Overview of Existing Training Tools for Employers. *Int J Environ Res Public Health, 16*(5). doi:10.3390/ijerph16050718

Smith, S., Makrides, L., Schryer Lebel, F., Allt, J., Montgomerie, D., Farquharson, J., . . . Szpilfogel, C. (2012). The Healthy Lifeworks Project: the role of organisational health in the personal health of employees. *International Journal of Workplace Health Management, 5*(3), 194-209. doi:10.1108/17538351211268854

Tsuji, T., Matsudaira, K., Sato, H., Vietri, J., and Jaffe, D. H. (2018). Association between presenteeism and health-related quality of life among Japanese adults with chronic lower back pain: a retrospective observational study. *BMJ Open, 8*(6), e021160. doi:10.1136/bmjopen-2017-021160

Varekamp, I., and van Dijk, F. J. (2010). Workplace problems and solutions for employees with chronic diseases. *Occup Med (Lond), 60*(4), 287-293. doi:10.1093/occmed/kqq078

Vooijs, M., Leensen, M. C. J., Hoving, J. L., Wind, H., and Frings-Dresen, M. H. W. (2018). Value of work for employees with a chronic disease. *Occup Med (Lond), 68*(1), 26-31. doi:10.1093/occmed/kqx178

WHO. (2020). Noncommmunicable Diseases Progress Monitor. *https://www.who.int/publications/i/item/ncd-progress-monitor-2020 (Accessed 18 May 2020).*

Zhang, W., Bansback, N., Boonen, A., Young, A., Singh, A., and Anis, A. H. (2010). Validity of the work productivity and activity impairment questionnaire--general health version in patients with rheumatoid arthritis. *Arthritis Res Ther, 12*(5), R177. doi:10.1186/ar3141.

Zhang, W., McLeod, C., and Koehoorn, M. (2016). The relationship between chronic conditions and absenteeism and associated costs in Canada. *Scand J Work Environ Health, 42*(5), 413-422. doi:10.5271/sjweh.3583.

https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1172805

Int Journal Of Health Manag. And Tourism 2022, 7(3),305-316

JHMT Editorial

International Journal Of Health Management And Tourism

CALCULATION OF HEALTH SYSTEM SUCCESS INDEX OF COUNTRIES ACCORDING TO MORTALITY, HEALTH EXPENDITURE AND HEALTHY LIFE EXPECTANCY

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Received:08.09.2022
Accepted: 21.10.2022
Research Article

Abstract

Aim: The aim of this study is to measure the health system success of G10 countries according to the dimensions of death, expenditure and healthy life expectancy by creating an index and comparing it multidimensional for both 2005, 2015 and 2020.

Methods: In the study, the "health system success index" consisting of three dimensions and four indicators was created. Dimensions were determined as quality of life, spending success-financial success- and death-mortality. While calculating the success index, indicators were used for each dimension and “quality of life index” for quality of life, “spending success index” for spending success and “living index” for death were

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formed. A general health system success index was obtained by taking the geometric average of the three indices created with the help of dimensions

Results: According to the 2005 health system success index, Japan was the most successful country among the G10 countries, while the USA was found to be the country with the lowest success index.

Conclusion: The country with the highest success index in 2020 was again Japan, while the Netherlands ranked 2nd as the country that made the most progress in this process. Similar to 2005, the USA was found to be the country that was relatively unsuccessful in 2020.

Keywords: Health System, Catastrophic Spending, G10, Quality of Life, Mortality

INTRODUCTION

The level of health of people in any country has a major impact on productivity, active participation in working life and well-being. When people are healthy, they can be productive at work and contribute to the country's economy. From a macro perspective, societies with good health produce more and are more prosperous (Zweifel et al., 2009). Therefore, health, together with education, is an important investment area for human capital as well as an important factor that determines the level of development of countries (Goldsmith, 1972). Health as one of the human capital investments; it directly concerns human and social life, on the other hand, it directly and indirectly affects the economic performance as a whole through investment, employment and production, as well as its contribution to the quality of the labor factor (Bayraktutan and Pehlivanoğlu, 2012).

Various socio-demographic and socio-economic indicators are used in the international comparison of countries and health systems (Dastan & Çetinkaya, 2015). These indicators provide the opportunity to compare countries and health systems according to different perspectives. For the comparison of health systems, the OECD has drawn a framework. According to the OECD health systems report, the main objectives of health systems are grouped under three headings. These; Good health status, which can be expressed as raising the health status of the society, is the ability of the health system to respond to the expectations of the society, that is, responsiveness, providing financial protection against the costs arising from the state of being sick, and a structure that will enable the society to participate in the financing of the health system in a fair way, in other words, fair financing. These three objectives draw a framework for the main objectives of health systems. The success of the health system implemented by the countries is measured by their success in achieving these three basic goals (OECD, 2008).

The most frequently used health indicators such as "life expectancy at birth", "infant mortality rate" and "maternal mortality rate" play a decisive role for good health status, which is one of the main goals of the health system. These indicators reflect the characteristics of the economic and social status of mothers and newborns, social environment, personal lifestyles, and therefore the health systems of countries (Daştan & Çetinkaya, 2015). The increase in catastrophic health expenditures has a threatening feature for fair financing and financial protection, which are one of the three main goals of the health system. Every year, millions of people in the world face financial problems in order to benefit from health services due to their weak ability to pay (Xu et al., 2007). This situation causes expenditures that jeopardize the usual expenditures and living standards of households and have a significant impact on the success of the health system of the countries. The ability of the health system to respond to the expectations of the society, that is, responsiveness, has been emphasized by the OECD as another indicator of success. The health system's infrastructure, service quality, technology, access to services, supportive services, etc. It is important that the health system is established in a way that meets the expectations of the society, together with all its elements. These affect the health level of the society. Undoubtedly, health is a highly complex value influenced by many factors. It is almost impossible to measure the effect of each of the factors affecting health. These elements are intertwined in daily life and it is very difficult to separate them. However, one of the important factors affecting health is health services, that is, the health system, as Dahlgren and Whitehead stated. With the developed methods, it is possible to measure the performance of the health system and to make an efficiency analysis. In this context, in the study, an achievement index was tried to be developed to measure the health system success of the countries in a relatively comparative way, taking into account the health indicators that affect the success of the countries' health systems and catastrophic health expenditures, and the health system achievements of the G10 countries were ranked with the help of the developed index and the results were interpreted.

A composite index is a mathematical combination of individual indicators or measures that represent different aspects of a single, larger concept. (Saisana and Tarantola, 2002). The overall goal of most of these indices is to rank countries and their comparisons by some aggregated dimension. (Cherchye, 2001; OECD, 2003). Although there are hundreds of indicators that measure specific aspects of health, health care utilization and health system performance, there is a lack of high-quality composite indexes in key strategic areas. Composite indices can be used to

summarize these complex or multidimensional issues to support a channel of communication for decision makers and the public. Population or system-wide, composite indices can be useful for strategic planning and reporting. On the other hand, these indices can provide opportunities to identify areas of intervention and action (MCHP, 2009). All major international organizations such as the OECD, the EU, the World Economic Forum or the IMF produce composite indicators in a wide variety of fields (Nardo et al, 2005).

Although there are not many studies in the literature, there are some preliminary studies on the establishment of a health system success index. For example; In a study, a composite index including seven indices, namely prevention and screening, beneficial behaviors, surgical waiting times, drug-related quality, primary care quality, chronic disease burden, and general health measures, was created in order to learn the success in the field of health. (MCHP, 2009). In addition, a composite index has been developed by the World Health Organization that summarizes the performance of health systems in 191 countries by giving equal weight to two dimensions in terms of both the overall level of success and the distribution of this success. If this composite index is; general health, distribution of good health, general responsiveness, distribution of responsiveness, and fair distribution of financial contributions (WHO, 2000).

1. RESEARCH METHODOLOGY

In the study, the relative success of the countries with the help of the index was measured separately with the data of 2005, 2015 and 2020. The universe of the study is Group of Ten countries. Group of Ten (G-10) is a group of developed countries that came together under the General Arrangements to Borrow agreement to provide loans to each other and to third states in special cases in case the IMF is insufficient. Since the population was limited in the study, no sample selection was made, and all countries whose data were reached were included in the scope of the study. During the analysis phase, France was excluded due to lack of data and the study was completed on 9 countries.

While determining the success dimensions, the OECD health systems report was taken into account and indicators for each dimension were used while calculating the success index. “quality of life index” for quality of life, “spending success index” for spending success and “living index” for mortality were created. The reason for choosing these variables in the health system success index in the study is the OECD health systems report. According to this report, the success of a

country in the health system is evaluated according to financial indicators, health status (health output) indicators and responsiveness to expectations. Variables such as catastrophic health expenditure, maternal-infant mortality rate, and life expectancy can be used for these indicators. This justification was also accepted in our study. Also, the index is similar to the Human Development Index (HDI). However, the difference between the two is that the HDI index includes education and income variables along with life expectancy, while the index we used in the study includes only health indicators.

While calculating the index, first of all, the data for each indicator was recorded completely. Then, first of all, negative indicators (such as mortality) were turned into positive using appropriate methodology. In this way, all the variables in the index were in the same direction. After this step, weighting was done by giving equal weight to each variable group. Two indicators in the mortality index have a weight of 50%, each indicator in the general index has a weight of 33.3%. Undoubtedly, giving equal weight to each variable in the success of the health system may create some problems. For example, it is not perfectly appropriate to take the "Catastrophic financial expenditure for Surgical Procedures" and "mortality" indicators with the same weight. However, since there is no weighting calculation for the variables used in the literature, the index calculation was continued with equal weighting. This is one of the limitations of the study. A general health system success index was obtained by taking the geometric average of the three indices created with the help of dimensions. Relative to the high value in the index, it shows that better results are obtained in the indicators. The structure of the health system success index and where the research data were compiled are presented in the Table 1.

Table 1. Health System Success Index Structure and Data

Dimension	Life quality	Spending Success	Mortality	
Used Indicator	Expected Healthy Life Years at Birth	Risk of financial catastrophic expenditure for Surgical Procedures (Percentage of Community)	Maternal mortality rate per 1000 live births	Infant mortality rate per 1000 live births
Indicator Modified and Used in	-	Risk of not incurring catastrophic financial expenditure for Surgical Procedures	Maternal Survival Ratio	Infant Survival Rate

Analysis				
Source	https://data.worldbank.org/indicator/SP.DYN.LE00.IN	https://data.worldbank.org/indicator/SH.SGR.CRSK.ZS	https://data.worldbank.org/indicator/SH.MMR.DTHS	

The risk of catastrophic health expenditure for surgical procedures, mortality rates and quality of life indicators were taken from the World Bank database. It is defined as out-of-pocket payments for surgery and anesthesia care where the risk of catastrophic expenditure exceeds 10% of total income when surgical care is required. Infant mortality rate is the number of infants who die before reaching the age of one per 1000 live births in a given year. The maternal mortality rate is the number of women who die while pregnant or within 42 days of termination of pregnancy from pregnancy-related causes per 100,000 live births. Although these two variables are also expressed as thousand units in the literature, their original source, the World Bank, was taken.

The indicators and dimensions used in the index calculation are as in the table. In order for the indicators in the health system success index to be in the same direction, first of all, the negative data were converted to positive format. The risk of financial catastrophic expenditure for surgical procedures, which is an indicator of financial success, was subtracted from 100 and turned into a positive risk of not doing it. The infant survival rate "ISR" (Infant Survival Rate) instead of the infant mortality rate "IMR", and the maternal survival rate "M" (Maternal Survival Rate) instead of the maternal mortality rate "MMR" were calculated with the help of the formula below. (Afonso ve Aubyn, 2006);

$$ISR=\frac{1000-IMR}{IMR} \quad MSR=\frac{100.000-MMR}{MMR}$$

Thus, the increases in each indicator were transformed into positive developments. The minimum and maximum values within the series were determined to convert the indicators in each dimension to values between 0 and 1. After determining the minimum and maximum values, the quality of life, financial success and mortality indices for each indicator were calculated as follows. In the study, this was used to normalize the data and index.

$$index = \frac{X_i - X_{min}}{X_{max} - X_{min}}$$

Here, X_i is the observed value, X_{min} is the minimum value in the relevant indicator series, X_{max} is the maximum value in the relevant indicator number. For the mortality index, a single mortality

index was obtained by taking the average of the maternal survival rate and infant survival rate indices. The health system success index was calculated by taking the geometric mean of the indices in three dimensions, as follows.

$$Health\ System\ Success\ Index = (\ Quality\ of\ Life^{1/3} \times Expenditure\ Success^{/3} \times Mortality^{1/3}\ )$$

Health system success index takes values between 0 and 1. An index value approaching 1 indicates that the success of the health system has increased, while a value approaching 0 indicates that the success of the health system is not relatively good.

2.FINDINGS

In the study, with the help of the index created, the relative success of the G10 countries was measured three times separately with the data of 2005, 2015 and 2020. Thus, it is aimed to see the success order of the countries and the change within the G10 countries with the help of up-to-date data, and to monitor the changes in the elapsed time by comparing it with 2005.

The index ranking of the countries for 2005 is as in the table below.

Table 2. Index Ranking for 2005

RANK	COUNTRY	INDEX
1	Japan	0.8093156
2	Italy	0.8007159
3	Sweden	0.7928254
4	Germany	0.703791
5	Belgium	0.6776607
6	England	0.6036463
7	Canada	0.6016707
8	Holland	0.5514915
9	USA	0.443509
France is not included due to lack of data.		

According to the 2005 health system success index, the most successful country was found to be Japan. For 2005, the USA was found to have the lowest achievement index among the G10 countries. The main reason for this situation is that the USA has relatively worse values in expected

healthy life years, mortality and expenditure indices. The USA is known as the country that spends the most on health in the world and allocates the highest share to health in its income. Despite this, it lagged behind other G10 countries in terms of health system success index. After the EU, the country with the lowest success index in 2005 was the Netherlands.

The index ranking of the countries for 2015 is as in the table below.

Table 3. Index Ranking for 2015

RANK	COUNTRY	INDEX
1	Japan	0.749578
2	Canada	0.682095
3	Sweden	0.634781
4	Italy	0.588909
5	Belgium	0.546446
6	Holland	0.534579
7	Germany	0.515232
8	England	0.486276
9	USA	0.302496

According to the health system success index of 2015, the country with the most success was found to be Japan. For 2015, the USA was found as the country with the lowest success index among the G10 countries. The UK, on the other hand, has an index value above only the USA in 2015. The main reason for this situation is that the UK's indicators are relatively worse compared to 2005. Canada is the most successful country after Japan in 2015. The index ranking of the countries for 2020 is as in the table below.

Table 4. Index Ranking for 2020

RANK	COUNTRY	INDEX
1	Japan	0,9808224
2	Holland	0,8904592
3	Italy	0,8656139
4	Germany	0,7269645
5	Sweden	0,7190474
6	Belgium	0,7035094
7	England	0,6473415
8	Canada	0,6247026
9	USA	0,4257685

According to the health system success index of 2020, the country with the most success was again found to be Japan. For 2020, the USA is the country with the lowest success index among the G10 countries. This situation is similar to the results of 2000 and 2015. Canada, on the other hand, has an index value above the USA in 2020, but is positioned in the penultimate rank among the G10 countries, excluding France. On the other hand, as in 2015, England was among the three relatively unsuccessful countries.

When the years 2000 and 2020 are compared, the changes in the rankings of the countries are presented in the table below.

Table 5. Comparison of 2005 and 2020 Index Rankings

COUNTRY	2005	2020	Change
Belgium	5	6	-1
Canada	7	8	-1
Germany	4	4	0
Italy	2	3	-1
Japan	1	1	0
Holland	8	2	6
Sweden	3	5	-2
England	6	7	-1
USA	9	9	0

When 2005 and 2020 are compared, the country with the highest rise in the ranking is the Netherlands. While the Netherlands was in the 8th place among the G10 countries in terms of health index in 2005, it rose 6 places in 2020 to the 2nd place after Japan. The Netherlands is the country that affects the rankings the most among the G10 countries. The change in the indicators in the health index in the Netherlands in this process can be seen as the main reason for the decline in the rankings of other countries. Because, apart from the Netherlands, there is no country that goes 2 places up or down.

Compared to the index ranking in 2005, the country that fell behind the most in 2020 is Sweden (-2). This situation is remarkable for Sweden, which is one of the G10 countries. When the results of the index rankings of 2005 and 2020 are compared, the countries that have regressed

in terms of success except Sweden are Belgium, Canada, Italy and England. One of the remarkable points in the analysis results is; The USA's ranking has remained unchanged from 2005 to 2020, and the USA is consistently ranked last among the G10 countries.

3. CONCLUSIONS AND RECOMMENDATIONS

Health is an important output used when evaluating both human capital investment and the development level of countries. Although there are many factors that determine the health of countries, the health system is an important determinant. Health systems have three important purposes. These are to improve the health of the population, to respond to people's expectations, and to provide financial protection against the costs of illness or health. The success of the health system of the countries directly determines the level of health and the level of development in the long term. For this reason, various benchmarking, ranking, effectiveness, performance and cause-effect analyzes have an extremely important place in the evaluation of the success of health reforms and health systems of countries. It is hoped that these analyzes will guide future interventions and provide an opportunity for comparison in terms of time/space. When compared to 2005, when the countries that declined in the ranking in 2020 are taken into account, the expected healthy life years at birth increased, the infant mortality rate per 1000 live births decreased, the maternal mortality rate per 1000 live births decreased again, and the risk of financial catastrophic expenditure for surgical procedures decreased. However, although there are improvements in the variable focus in general, there may be two reasons why some countries are relatively low in the ranking. Firstly, the developments in the health system success indicators in these countries are below the rate of progress in other countries, and secondly, rather than the rate of progress, the difference with other countries is high at the beginning. Considering the progress rates in the indicators, the Dutch infant mortality rate rose from 4.9 to 3.6; maternal mortality rate and maternal mortality rate also decreased from 8.5 to 1.2. The risk of financial catastrophic spending on surgical procedures has also been significantly reduced. When these development rates are compared with other countries, it has been seen that the Netherlands is among the countries with the highest rate of improvement in indicators. It even ranks first in the G10. On the other hand, from the point of view of the USA, which is in the last place in all three years in the ranking, although the infant mortality rate decreased from 6.9 to 5.4'in in 2020 compared to 2005, the risk of financial catastrophic expenditure for surgical procedures increased in 2020 compared to 2005. For this reason, although the success of the USA in some health indicators is important, the relative decline

in other indicators in the health system success index can be considered as the main reason why it is still behind other G10 countries.

It is extremely important whether the health system is effective or not. It is difficult to determine an absolute value in the effectiveness and success of health systems. For this reason, it is important to compare countries and systems with similar structures with the help of relatively various models. Therefore, it is necessary to increase the number of comparative studies to determine the effectiveness of the health system. Each work to be done will deal with the subject from a different perspective. In order to have a relatively effective health system, it is extremely important for countries to develop their own models as well as benefit from the positive experiences of other countries.

Conflict of Interest: The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: This research was not supported by any institution.

References

Afonso A. and Aubyn M. (2006). Relative Efficiency of Health Provision: a DEA Approach with Non-discretionary Inputs, ISEG-UTL Economics Working Paper No. 33/2006/DE/UECE. Retrieved 01 September 2022 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=952629

Cherchye, L. (2001). Using Data Envelopment Analysis to Assess Macroeconomic Policy Performance, *Applied Economics*, 33, 407-416.

Daşdan, İ. ve Çetinkaya, V. (2015). OECD Ülkeleri ve Türkiye'nin Sağlık Sistemleri, Sağlık Harcamaları ve Sağlık Göstergeleri Karşılaştırması. *Sosyal Güvenlik Dergisi (SGD), 5*(1), 104-134.

Manitoba Centre for Health Policy (MCHP) (2009). Composıte Measures/Indices of Health And Health System Performance. Retrieved 01 September 2022 http://mchpappserv.cpe.umanitoba.ca/deliverablesList.html

Nardo M., Saisana M., Saltelli A., Tarantola S., Hoffman A. ve Giovannini E. (2005). Handbook on constructing composite indicators: methodology and user guide, OECD Statistics Working Paper, Paris.

OECD (2003). Composite indicators of country performance: a critical assessment, DSTI/DOC(2003)16, Paris.

OECD (2008). Health System Reviews: Turkey. OECD and World Bank Publications.

Saisana M. and Tarantola S. (2002). State-of-the-art report on current methodologies and practices for composite indicator development. EUR 20408 EN Report, European Commission, JRC, Ispra, Italy.

WHO (2000). Overall Health System attainment for 191 countries. WHO Publications.

Xu, K., Evans, D., Carrin, G., Aguilar-Rivera, A., Musgrove, P., ve Evans, T. (2007). Protecting households from catastrophic health spending. *Health Aff (Millwood), 26*(4), 972-983.

https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1174455

Int Journal Of Health Manag. And Tourism 2022, 7(3),317-331

JHMT Editorial

International Journal Of Health Management And Tourism

AN EXAMINATION OF THE RELATIONSHIP BETWEEN THE ATTACHMENT STYLES AND INTERNET ADDICTION IN MEDICAL SECRETARIES

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Received:13.09.2022
Accepted: 21.10.2022
Research Article

Abstract

Aim: The aim of study is to examine the relationship between internet addictions and attachment styles of medical secretaries.

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Methods: The population of this study comprises 280 medical secretaries working at University Hospital. Personal information form, Three-Dimensional Attachment Styles (TDAS) and Internet Addiction Scale (IAS) were used as data collection tools in the study.

Results: According to the results obtained as a result of the study, it was determined that the most preferred activity for the medical secretaries to spend their free time was going on the internet with the rate of 35,6%. IAS total score average is 4.24±0.66 and the highest mean score in its sub-dimensions is the social isolation dimension with 4.49±0.76 points. The total mean score of the TDAS is 2.68±0.43 and the highest mean score in the sub-dimensions of the scale is the secure attachment dimension with 3.91±0.64. It was determined that only anxious/ambivalent attachment style had a negatively significant effect in explaining internet addiction.

Conclusion: Consequently, in this study, which was conducted to examine the relationship between attachment styles of medical secretaries and their internet addiction, a weak and negatively significant relationship was found between internet addiction and anxious/ambivalent attachment style.

Keywords: Attachment styles, internet addiction, medical secretary

INTRODUCTION

In providing health services with high quality, efficiency and at a level that meets the expectations of the society, the approaches and methods adopted by the employees in the working environment also have great importance (Ozata and Yorulmaz, 2020:42) as well as the level of knowledge and skills they have (Tanriverdi Hergun, 2018:33). Considering that working environment affects employees and employees affect working environment, it is expected that the working styles and social interactions adopted depending on the changing conditions will differ (Ozata and Yorulmaz, 2020:43-44).

In this respect, there are different reflections of the attachment styles and internet addictions of employees, and, due to spending excessive time on the internet, other aspects of life is neglected, sleep disturbances occur, social life is affected negatively and employee performance reduces. Internet addiction, which is accepted as one of today's current problem areas and affects working life, varies depending on the attachment styles of employees, apart from their socio-cultural characteristics (Morsunbul, 2014:358).

Based on these considerations, it was aimed in this study to examine the relationship between medical secretaries' attachment styles and internet addiction. Therefore, it was planned to explain

attachment styles first, handle the perception of internet addiction then, and present the findings of this study finally.

Attachment Styles

Attachment is based on the feeling of trust and is defined as the bond established between the baby and the primary caregiver (Kocairi et al, 2020:12; Yildizhan, 2017:67). Attachment theory has started to be developed by John Bowlby (Celik, 2018:28; Yildizhan, 2017:67) during the World War II. As a result of the activities conducted on this issue, attachment styles are classified in different forms (Yildizhan, 2017:67). Bowlby focused on the internal working model in his studies (Celik, 2018:28; Ozkan, 2013:13), and argued that adequate attention and support during childhood had an important effect on shaping the feeling of trust (Celik, 2018:28).

The model developed by Ainsworth et al. (1978) as a result of their studies based on childhood is expressed as the three-dimensional attachment model. According to this model, there are secure, ambivalent and avoidant attachment styles (Erzen, 2016:6). Studies after Ainsworth have been carried out with the idea that continuous attachment is also shaped within the framework of the Ainsworth model in other periods of life. In this context, Hazan and Shaver (1987) conducted comprehensive research between the ages of 14-82 in order to adapt three-dimensional attachment to different life periods and revealed that attachment styles are a lifelong process within the framework of the Ainsworth model (Hazan and Shaver, 1994:2).

Depending on the continuity of the studies in this field over time, different attachment styles based on childhood and adulthood periods and romantic affairs emerged.

In the secure attachment style, individuals have the belief that attachment figures such as parents and spouses will be effective and reliable when under any threat, and behave accordingly (Yildizhan, 2017:67). It is stated that individuals having learnt to trust are able to improve themselves and have the skill of empathy (Erzen, 2016:6). It is stated that balance is achieved in this attachment style and the relationships established are satisfactory (Ozkan, 2013:15).

In the ambivalent attachment style, it is seen that individuals do not like physical intimacy, but in case of separation, they develop protest attitudes against separation from the person they are attached to, and they continue to protest even if they get together (Erzen, 2016:6). It is stated that lack of trust is effective for the emergence of this attachment style, and individuals struggle in order to keep others around themselves (Ozkan, 2013:15).

In the avoidant attachment style, it is emphasized that the protest attitude of individuals against separation from the person they are attached to is important in reducing the anger experienced and creates a defense mechanism effect (Erzen, 2016:6). The desire of others to get close and maintain this closeness causes discomfort to individuals who adopt this attachment style, and it is noted that having difficulty in trusting and avoiding to attach are among their main characteristics (Ozkan, 2013:15).

Another attachment model is the one which was developed as a result of the studies conducted by Bartholonew and Horowitz. In this model, the Four-Category Attachment Model, which is categorized as secure, preoccupied, dismissive-avoidant and fearful attachment, is focused on, and it is aimed to explain attachment behavior and the underlying reasons. According to this model, it is suggested that positive and negative mental perception levels of the individuals that they have both for themselves and others affect and differentiate their attachment styles (Celik, 2018:28).

Internet Addiction

Internet addiction, which is accepted as one of the increasing problem areas of today, is stated as the excessive use of the internet, the inability to prevent this situation, the inability of individuals to prevent themselves, and, from another point of view, the inability to give up internet, and is defined as a situation in which the signs of irritability and aggression manifesting themselves in the case of being deprived of the internet (Celebi and Celebi, 2020:40). According to another statement, using the internet unrestrainedly is described as internet addiction (Aycanoglu and Unsal, 2017:166). It is believed that the loneliness individuals experienced and inadequate social relationship situation are among the most important reasons of internet addiction emergence (Celebi and Celebi, 2020:40).

Considering that attachment styles individuals have are determinant for social relationships and affect their socialization skills, it is stated that there is also a relation between the attachment style adopted and internet addiction. In the literature, it is pointed out that attachment styles are among the important factors affecting internet addiction and indicated that determining the factors that cause internet addiction will contribute to the steps to be taken to overcome this problem (Celebi and Celebi, 2020:40). Another finding obtained as a result of the studies analyzing the relation between attachment styles and internet addiction is that the relation between the attachment styles and internet addictions of the individuals adopting the secure attachment style is negative (Morsunbul, 2014:359).

1. RESEARCH METHODOLOGY

1.1. Data and Sample

The population of this cross-sectional study includes a total of 280 medical secretaries working at Erciyes University Health Research and Application center between the dates of July - August 2018. The size of the sample was determined as 163 at 95% confidence interval with the 5% error margin, and 180 medical secretaries reached within the study were included.

1.2. Measures

A personal information form including the demographic and socio-cultural characteristics of the participants, the Three-Dimensional Attachment Style Scale and the Internet Addiction Scale were used in the study as data collection tools. The data collection tools were applied face-to-face interview method on a voluntary basis.

Internet Addiction Scale

The Internet Addiction Scale, which was developed by Gunuç and Kayri (2010) and of which validity and reliability studies were conducted, is a 5-point likert scale including 35 questions. It includes 4 subscales as withdrawal (1st – 11th questions), controlling difficulty (12th – 21st questions), disorder in functionality (22nd – 28th questions) and social isolation (29th – 35th questions). The scale was scored from 5 to 1, and while “Totally Agree” is 5 point, “Totally Disagree” is 1 point. All the items in the scale are for addiction, so there is no need to transpose. As the score increases, internet addiction also increases. Cronbach’s Alpha (α) value of the scale was found as 0.94 in this research.

Three-Dimensional Attachment Styles Scale

The 5-point likert scale, which was developed by Erzen (2015) and the validity and reliability studies were conducted, includes 18 items and 3 subscales. The scale aims to measure the secure attachment style (4th, 7th, 10th, 13th and 16th items), avoidant attachment style (1st, 3rd, 5th, 9th, 12th, 15th and 18th items) and anxious/ambivalent attachment style (2nd, 6th, 8th, 11th, 14th and 17th items). There are no reverse coded items in the scale. The participants are asked to evaluate the scale as Strongly Disagree 1 (one), Disagree 2 (two), Neutral 3 (three), Agree 4 (four) and Strongly Agree 5 (five) in the 5-point likert interval. It is not possible to evaluate the total score of the scale since the Secure Attachment Style subscale measures positive characteristics and the others negative characteristics. In this study, the total Cronbach’s Alpha value of the scale was calculated as 0.73,

and Cronbach Alpha internal consistency coefficients determined for withdrawal, secure and anxious/ambivalent attachment styles as 0.60, 0.76 and 0.75.

1.3. Statistical Analysis

SPSS 25.0 and AMOS 24 were used in the analysis. In between-groups comparisons, independent two-sample *t* test and one-way analysis of variance were used for quantitative variables. Tukey method was used as the multiple comparison analysis (post-hoc test). In the evaluation of the relation between the variables, Pearson correlation coefficient was calculated. Multiple linear regression analysis was conducted in the multivariate analysis between internet addiction and attachment styles subscales. The relation of internet addiction and attachment styles, which is the conceptual model created, was tested by structural equation modelling and the results were shown on a graph. In addition, summary of fit and the size of the relations were shown by standardized beta values. In statistical evaluations, the significance level was accepted as **p< 0.05.**

1.4. Ethics Committee Approval

The Ethics Committee of Erciyes University, Faculty of Medicine, approved this study (18.04.2018 dated and 216 numbered), and informed consent was obtained from the participants.

2.FINDINGS

This study was conducted on 180 medical secretaries working at Erciyes University Health Research and Application Center. 49.4% of the individuals in the research group were between the age range of 31-35, 72.8% were females, 74.4% were married and 56.7% had associate degree. The working period in the profession of the 38.3% of the participants was between the range of 6-10 years and the working period in the institution of the 38.9% was 6-10 years. 66.1% of the medical secretaries stated that their current job was related to their education. 61.1% of the medical secretaries gave the answer of "ambitious and hardworking" to the question of "Specify traits that match your personality." It was determined that 25.6% of the medical secretaries were smoking, and 1.1% were drinking alcohol regularly. It was found that 41.1% of the participants spent less than 1 hour on average in a day on the internet and 83.9% of them were members of social networking sites. The most preferred activities by the medical secretaries to spend free time were, respectively, using internet with the 35.6%, listening to music with 26.7%, reading a book with 25.6%, doing sports with 22.8%, playing computer games with 3.9% and doing other things with 60%.

Table 1. The Distribution of the Scores Medical Secretaries Obtained from Internet Addiction Scale and Three-Dimensional Attachment Styles Scale

Scales and Subscales	Min.	Max.	Mean	Std. Deviation
Internet Addiction Scale				
Withdrawal	1.64	8.00	3.96	0.81
Controlling Difficulty	1,60	5.00	4.34	0.63
Disorder in Functionality	1.43	5.00	4.31	0.84
Social Isolation	1.57	9.43	4.49	0.76
Total Score	1.83	5.89	4.24	0.66
Three-Dimensional Attachment Styles Scale				
Secure Attachment	1.80	5.00	3.91	0.64
Avoidant Attachment	1.00	5.00	2.08	0.66
Anxious/Ambivalent Attachment	1.00	5.00	2.35	0.68

The total score average of the Internet Addiction Scale was 4.24±0.66, and *social isolation* subscale had the highest average with the score of 4.49±0.76.

The highest score average in the subscales of Three-Dimensional Attachment Styles Scales belonged to the *secure attachment* with 3.91±0.64 (Table 1).

Table 2: The Distribution of the Internet Addiction Styles and Three-Dimensional Attachment Style Scale Scores in terms of Various Variables

Variables	n(%)	Internet Addiction Scale Subscales					Three-Dimensional Attachment Style Subscales		
		Withdrawal	Controlling Difficulty	Disorder in Functionality	Social Isolation	Total Score	Secure Attachment	Avoidant Attachment	Anxious/ Ambivalent Attachment
Age									
20-25	12 (6.7)	3.53	4.25	3.86	3.89	3.87	3.85	1.75	2.62
26-30	30 (16.7)	4.08	4.42	4.48	4.51	4.34	4.20	1.97	2.23
31-35	89 (49.4)	3.92	4.25	4.20	4.43	4.17	3.86	2.19	2.39
36-41	36 (20)	4.06	4.47	4.52	4.77	4.41	3.76	2.13	2.34
Above 41	13 (7.2)	4.11	4.47	4.43	4.65	4.39	4.09	1.75	2.19
p value		0.250	0.342	0.070	**0.008****	0.077	**0.046***	**0.047***	0.442
Gender									
Female	131(72,8)	4.01	4.34	4.26	4.45	4.24	3.93	2.07	2.37
Male	49 (27.2)	3.84	4.33	4.43	4.60	4.25	3.86	2.10	2.31
p value		0.200	0.969	0.144	0.232	0.914	0.496	0.786	0.665
Marital Status	134(74.4)	4.04	4.37	4.32	4.56	4.30	3.91	2.07	2.30
Married	46(25.6)	3.72	4.23	4.27	4.28	4.09	3.93	2.11	2.52
Single		**0.037***	0.239	0.709	**0.026***	0.066	0.867	0.723	0.054
p value									
Education									
High School	8 (4,4)	3.98	4.23	4.05	4.25	4.12	3.67	2.10	2.35
Associate	102(56.7)	3.96	4.31	4.24	4.42	4.21	3.94	2.07	2.34
Deg.	70 (38,9)	3.95	4.39	4.44	4.61	4.30	3.90	2.09	2.37
Bachelor's Deg.		0.993	0.660	0.212	0.204	0.571	0.496	0.963	0.964
p value									

Working Period in the Occupation									
1-5 years	26(14.4)	3.69	4.06	3.94	3.95	3.90	4.01	1.91	2.41
6-10 years	69(38.3)	3.88	4.30	4.22	4.42	4.18	3.99	2.06	2.41
11-15 years	63(35.0)	4.12	4.43	4.46	4.69	4.39	3.86	2.23	2.34
16 years above	22 (12.2)	4.09	4.52	4.57	4.74	4.44	3.70	1.90	2.16
p value		0.087	**0.037***	**0.019***	**0.000***	**0.005***	0.238	0.100	0.485
Personality Trait									
Ambitious, Hardworking	110(61.1)	4.00	4.34	4.33	4.53	4.27	3.92	2.13	2.31
Emotional	59(32.8)	3.83	4.24	4.16	4.37	4.12	3.87	1.95	2.32
Passive	11(6.1)	4.30	4.85	4.92	4.67	4.66	4.09	2.24	2.97
p value		0.148	**0.012***	**0.21***	0.297	**0.039***	0.574	0.171	**0.009***
Smoking									
Yes	46(25.6)	4.05	4.44	4.46	4.60	4.36	3.90	2.14	2.26
No	134(75.4)	3.93	4.31	4.25	4.45	4.21	3.92	2.06	2.39
p value		0.396	0.201	0.164	0.240	0.195	0.923	0.471	0.258
Time spent on the internet									
Less than 1 hour	74(41,1)	4,2334	4,5203	4,3687	4,6197	4,4197	4,0324	2,1525	2,2838
1-2 hours	73(40,6)	3,8755	4,2877	4,3288	4,3503	4,1789	3,7945	1,9961	2,2877
3-4 hours	23(12,8)	3,5968	4,0304	4,0559	4,5901	4,0112	3,8783	2,1988	2,4420
More than 5 hours	10 (5.6)	3,4909	4,1500	4,3286	4,3429	4,0171	4,0400	1,9143	3,2000
p value		**0.000****	**0.004***	0.480	0.148	**0.019***	0.138	0.335	**0.001****
Social Media Membership									
Yes	151(83.9)	3.93	4.30	4.26	4.47	4.21	3.92	2.10	2.34
No	29 (16.1)	4.16	4.54	4.55	4.60	4.43	3.91	1.99	2.42
p value		0.153	0.060	0.099	0.421	0.096	0.954	0.444	0.592

* p<0.05 /** p<0.01

Internet Addiction Scale Social Isolation subscale scores of the medical secretaries between the ages of 36-41 who participated in the study were found significantly higher than the other medical secretaries. Internet Addiction Scale Withdrawal and Social Isolation subscales scores of the married medical secretaries were significantly higher than the single ones. Internet Addiction Scale total scores and Controlling Difficulty, Disorder in Functionality and Social Isolation subscales scores of the medical secretaries working in the occupation more than 16 years were found significantly higher than the other groups. Internet Addiction Scale total scores, Controlling Difficulty and Disorder in Functionality subscale scores, and Three-Dimensional Attachment Styles Scales Anxious/Ambivalent Attachment Style subscale scores of the medical secretaries who stated their personality traits as “passive” were found significantly higher than those stating their personality traits as “ambitious, hardworking” and “emotional” (Table 2).

Internet Addiction Scale total scores, withdrawal and controlling difficulty subscales scores, Three-Dimensional Attachment Styles Scale Anxious/Ambivalent Attachment scale subscale scores of the medical secretaries who spent less than 1 hour in a day on the internet were found significantly higher than the other groups (Table 2).

Table 3. The Correlation Matrix between the Internet Addiction Scale and Three Dimensional Attachment Style Scale Scores of the Medical Secretaries

Subscales		Three-Dimensional Attachment Styles Scale		
		Secure Attachment	**Avoidant Attachment**	**Anxious/Ambivalent Attachment**
Internet Addiction Scale	**Withdrawal**	r= 0.125 p= 0.095	r= -0.079 p= 0.292	**r= -0.227** **p= 0.002****
	Controlling Difficulty	r= 0.089 p= 0.236	**r= -0.163** **p= 0.028***	**r= -0.254** **p= 0.001****
	Disorder in Functionality	r= 0.106 p=0.156	r= -0.013 p= 0.860	**r= -0.159** **p=0.033***
	Social Isolation	r= 0.095 p= 0.204	r= -0.028 p= 0.707	**r= -0.160** **p=0.032***
	Total Score	r= 0.121 p= 0.106	r= -0.084 p= 0.260	**r= -0.233** **p=0.002****

* p<0.05 ** p<0.01

In the study, a weak and negatively significant relation was determined between avoidant attachment style and controlling difficulty subscale scores and between anxious/ambivalent subscale scores and withdrawal, controlling difficulty, disorder in functionality, social isolation subscales and internet addiction total scores (p<0.05) (Table 3).

Table 4. The Multiple Regression Analysis Results on Predicting the Internet Addiction of Medical Secretaries

Variables	B	S. Error	ß	t	p	r
Invariant	4.179	0.374		11.171	**0.000****	
Secure Attachment	0.133	0.077	0.128	1.724	0.086	0.121
Avoidant Attachment	0.076	0.086	0.076	0.882	0.379	-0.084
Anxious/Ambivalent Attachment	-0.259	0.082	**-0.268****	-3.172	**0.002****	**-0.233****

p<0.01 **Not. R^2=0.07; Cor. R^2=0.56; $F_{(3,176)}$ = 4.521 p=0.004

Multiple linear regression analysis was performed in order to analyze how secure attachment, avoidant attachment and anxious/ambivalent attachment styles determined the internet addiction levels of the medical secretaries. Mean, standard deviation and correlation coefficients and

multiple regression analysis results were given in Table 4. Multiple regression analysis results were found statistically significant [F(3,176) = 4.521 p=0.004]. Corrected R^2 value is 0.07. This result reveals that the variance at the rate of 7% in the internet addiction is explained by secure, avoidant and anxious/ambivalent attachment styles. However, when Beta coefficients in the table are examined, it is seen that only anxious/ambivalent attachment contribute to explain internet addiction when all independent variables are included in the regression model (ß =-0.268, p<0.01). The analysis of the relationship between the attachment styles scale and internet addiction by structural equation modeling is presented in Figure 1.

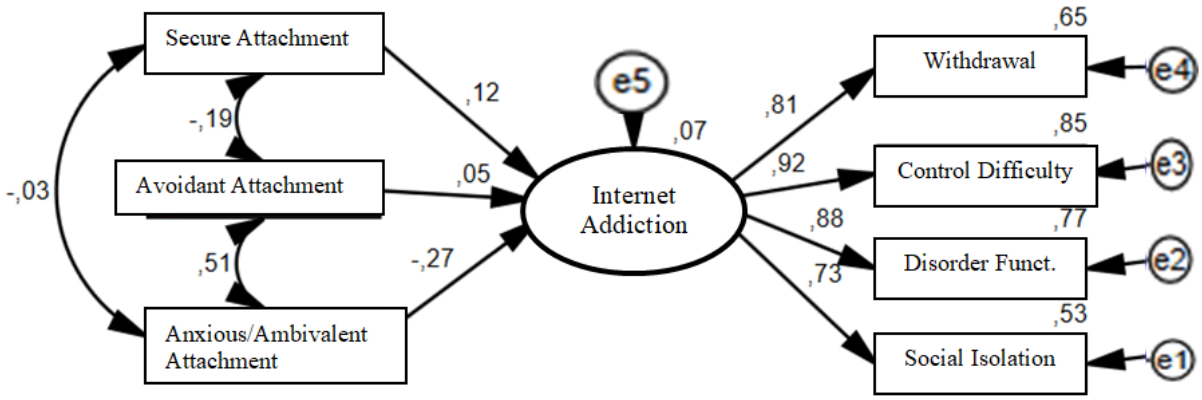

Figure 1. The structural equation modeling analysis of the relation between attachment styles and internet addiction

In the SEM analysis, it was determined that anxious/ambivalent attachment style has a significant effect on internet addiction at the level of β=-0,27 (t=-3,172) (p<0,001). It is seen that the internet addiction subscales represent the whole significantly and strongly. The goodness of fit values chi-square/degress of freedom were determined as (13,930/10)=1,393, GFI = 0,979, AGFI= 0,941, TLI= 0,985, NFI= 0,976, CFI=0,993, and RMSEA value as 0,047. It is stated that if RMSEA value is below 0.05, x2/sd below 3 and GFI, AGFI, TLI, NFI and CFI above 0.95, then the model is in good fit (Gurbuz and Sahin 2018:345). According to the goodness of fit values, the model is in good fit with the data and acceptable. The descriptive coefficient of the model is R^2=0,74.

3. CONCLUSIONS AND RECOMMENDATIONS

In this study, which was conducted to analyze the relation between the attachment styles and internet addictions of medical secretaries, the Internet Addiction Scale total score average of the medical secretaries was found as 4.24±0.66, and the highest average in the subscales belonged to

social isolation subscale with 4.49±0.76. As the score obtained increases, internet addiction also increases. In Muezzin's study (2017), which is titled as Examining the Internet Addiction of High School Students in the context of Withdrawal, Controlling Difficulty, Disorder in Functionality and Social Isolation, it is reported that social isolation, controlling difficulty and disorder in functionality subscales have the highest score averages due to the internet use for 8 hours and above, and there is a statistically significant difference in controlling difficulty, social isolation and disorder in functionality depending on the daily time of internet use. On one hand, internet increases interpersonal communication on social ground, on the other hand it causes face to face communication to be restricted, therefore it leads people to go into a social isolation process. Hence, the social isolation score was found to be the highest in our study. At this point, the high score is related to the fact that the attention is directed to the virtual world as well as time is spent in the virtual environment rather than the real environment.

In our study, it was determined that the highest score average was in the secure attachment subscale with 3.91±0.64. People adopting secure attachment style do not have problems in establishing trust and intimacy in their relationships, and they also see themselves as valuable individuals (Bartholomew and Shaver, 1998).

Internet Addiction Scale Social Isolation subscale scores of the medical secretaries between the age range of 36-41 was found significantly higher than the others. Bolat et. al reported in their study titled Examining the Factors Affecting Internet Addiction in Healthcare Professionals by Logistic Regression Analysis that as the age increased the addiction decreased (Bolat E, 2019). Kumcagız (2019), in her study on internet addiction among university students, reported that university student's internet addiction scores were negatively correlated with age. The rate of relationships with the environment and tending to different interests at young ages is high. Due to many interests and responsibilities such as the processes in working life, relationships with the environment, social life and education and rising processes of children in the family, the tendency to virtual environment will be less. On the other hand, since both in working life and responsibilities in the family and communication processes will settle, the tendency to virtual environment can come to the forefront. Accordingly, in our study, Internet Addiction Scale total scores and Controlling Difficulty, Disorder in Functionality and Social Isolation subscale scores of the medical secretaries working in the occupation more than 16 years were found significantly higher than the other groups. The fact that the length of working time in the occupation and age

increase are parallel is natural, and an increase in the internet use with the increasing age is an expected situation in accordance with the reasons mentioned above.

I nternet Addiction Scale total scores, Controlling Difficulty and Disorder in Functionality subscale scores and also Three-Dimensional Attachment Style Scale Anxious/Ambivalent Attachment Style subscale scores of the medical secretaries describing themselves as "passive" were found significantly higher than those describing themselves as "ambitious, hardworking and emotional." This is an expected result, and passive personality can increase the tendency to virtual environment since it causes weakness in social relationships.

In the study, a weak and negatively significant relation was determined between avoidant attachment style and controlling difficulty subscale scores, between anxious/ambivalent attachment style subscale scores and the subscale scores of withdrawal, controlling difficulty, disorder in functionality, social isolation and internet addiction total scores. Multiple linear regression analysis was performed to examine how secure attachment, avoidant attachment and anxious/ambivalent attachment styles determine the internet addiction levels of the medical secretaries. It was determined that only anxious/ambivalent attachment had significant contribution to explain internet addiction. Individuals with "anxious-avoidant" attachment style have the weakest sense of trust in the relationship, have negative expectations about the relationship, and avoid close relationships (Ainsworth et. al, 1978: 55). "Anxious/ambivalent" attachment emerges with the lack of trust (Hazan and Shaver, 1994). In people with anxious/ambivalent attachment style, tendency to internet aims at spending time and recovering the communication restrictions with the outer world rather than a specific target. Therefore, the internet use time of these people can be shorter and further from continuity when compared to target-specific attachment.

In Celebi and Celebi's study, it is reported that there is a significant relation between attachment styles and internet addictions of teenagers (Celebi and Celebi 2020). In Morsunbul's study titled as The Relationship of Internet Addiction with Attachment Styles, Personality Traits, Loneliness and Life Satisfaction, while secure attachment of attachment styles predicts internet addiction in a negative way, indifferent and preoccupied attachment styles that are distinctively characterized by anxiety and avoidance predict internet addiction in a positive way (Morsunbul 2014). In the same study, it is reported that the attachment patterns of the individuals who can be described as internet addicts are mostly shaped by anxiety and avoidance.

In the study conducted on the patients with internet addiction by Senormancı et al. (2014:203), it is stated that the anxious attachment levels of those suffering from internet addiction are found high.

Individuals with high attachment anxiety may reveal a tendency to connect to the internet to feel social belonging and to relax by receiving feedback (Hart et al. 2015: 33). They may use social media as a shelter in order to cope with the distrust when they have negative feelings (Rom ve Alfasi 2014: 24).

In the study, the Internet Addiction Scale total scores, withdrawal and controlling difficulty subscale scores and Three-dimensional Attachment Styles Scale Anxious and Ambivalent Attachment Style subscale scores of the medical secretaries spending less than 1 hour on the internet a day were found significantly higher than the other groups. Those who connect to the internet for a short time for any reason will have high scale scores as a result of not being able to connect sufficiently.

As a result, it has been observed that there is a negative relationship between internet addiction and anxious/ambivalent attachment style in medical secretaries. In order to obtain more comprehensive results, focus group interviews will be held with different occupational groups in the field of health, so that the relationship between internet addiction and attachment styles will be better explained.

Limitations

Research data were obtained by self-report survey method. They were limited by the medical secretaries working at Erciyes University Health Research and Application Center. Our study results cannot be generalized to the population.

Acknowledgement

The authors declare that they did not receive any funding or support for the present study and that there are no potential conflicts of interest related with it.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Conflict of Interest: The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

Ainsworth, M.D., Blehar, M., Waters, E., and Wall, S. (1978). Patterns of attachment: A psychological study of the strange situation, *NY: Psychology Press Taylor and Francis.*

Aycanoğlu, C., and Ünsal, G. (2017). Attachment Styles and Impacts of Internet Addiction to the Marital Adjustment. *JAREN*, 3(3):163-168.

Bartholomew, K., and Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology,* 61(2), 226–244

Bolat, E., Ayvaz, Ö., and Yurtseven, E. (2019). Investigation of factors affecting internet addiction in healthcare workers by logistıc regression. *Journal of Social and Humanities Sciences Research (JSHSR),* 6 (37):1370-1375.

Celebi Gulin, Y., and Celebi B. (2020). Analysıs of The Relationship Between Attachment Styles and Internet Addiction Levels of Adolescents. *ACU International Journal of Social Sciences*, 6(2): 37-48.

Erzen, E. (2016). Three Dimensional Attachment Style Scale. *İnonu University Journal of the Faculty of Education* 17(3), 01-21. DOI: 10.17679/iuefd.17323631.

Gunuç, S. and. Kayri M. (2010). The Profile of Internet Dependency in Turkey and Development of Internet Addiction Scale: Study of Validity & Reliability. *H. U. Journal of Education*, 39, 220-232.

Gurbuz, S. and Sahin F. (2018). *Research Methods in Social Sciences,* (5th Edition), Seckin Publishing: Ankara.

Hart, J., Nailling E.,. Bizer G., and Collins C.K.(2015). Attachment Theory as A Framework For Explaining Engagement With Facebook. *Personality and Individual Differences,* 77, 33–40.

Hazan, C. and Shaver P.R.(1994). Attachment as an Organizational Framework For Research on Close Relationships. *Psychological Inquiry*, 5 (1), 1- 22.

Kocairi, C., Yuksel R., Arslantas H. and Soylemez B. (2020). The Relationship of Attachment Styles of High School Student Adolescents with Technology Dependencies: A Cross-Sectional Study. *Yeni Symposium*, 58(1), 11-17.

Kumcagız H. (2019). Examination of Turkish University Students' Internet Addiction in Relation to Their Parental Attachment Styles and Sociodemographics. *SAGE Open.* 1-11, doi:10.1177/2158244019845946

Morsunbul, U. (2014). The Association of Internet Addiction with Attachment Styles, Personality Traits, Loneliness and Life Satisfaction. *International Journal of Human Sciences*, 11(1), 357-372. doi: 10.14687/ijhs.v11i1.2727.

Ozata, M. and Yorulmaz M. (2020). A Research on Working Conditions of Medical Secretaires and Stress Factors. *Kırsehir Ahi Evran Universty Journal of the Institute of Health Sciences*, 1(1),41-52.

Ozkan, O. (2013). Examining The Variables Related to Internet Use in Terms of Gender, Personality Traits, Life Satisfaction and Attachment Styles, *Master Thesis,* Ankara University Institute of Social Sciences: Ankara.

Rom, E, and Alfasi Y. (2014). The Role of Adult Attachment Style in Online Social Network Affect, Cognition, and Behavior. *Journal of Psychology and Psychotherapy Research*, 1, 24–34.

Senormancı, O., Senormancı G., Guclu O. and Konkan R. (2014). Attachment and Family Functioning in Patients with Internet Addiction. *General Hospital Psychiatry*, 36(2), 203–207. doi: 10.1016/j.genhosppsych.2013.10.012.

Tanriverdi Hergun, H. (2018). A Study on The Workload Analysis and Job Satisfaction of Medical Secretaries. *Journal of Ankara Health Sciences*, 2, 32-47. Doi: 10.1501/Asbd_0000000085.

Yildizhan, E. (2017). Attachment Theory and an Overview of Attachment Disorders. *Anatol Clin*, 22(1), 66-72. DOI: 10.21673/anadoluklin.237462.

https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1174516

Int Journal Of Health Manag. And Tourism 2022, 7(3),332-351

JHMT Editorial

International Journal Of Health Management And Tourism

THE EVALUATION OF THE WEB SITES OF THE HEALTH CARE INSTITUTIONS IN KAYSERI HAVING MEDICAL TOURISM LICENSE IN TERMS OF MEDICAL TOURISM

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Received:13.09.2022
Accepted: 21.10.2022
Research Article

Abstract

Aim: This study aims to emphasize the importance of medical tourism, to evaluate the suitability of the web sites of the health care institutions in Kayseri having the right of receiving Medical Tourism License, which is provided by T.R. Ministry of Health and to provide recommendations regarding this issue.

Methods: The web sites of the 17 health care institutions located in Kayseri that had the right of receiving Medical Tourism License until August 2022 were included in the study. The websites were evaluated based on 10 criteria by using content analysis method and scored by standardizing them.

Results: The websites did not get the maximum score from any criteria. While the criteria of information regarding communication and transport to the healthcare facility received the highest scores, the criteria of information regarding news and statistics received the lowest scores. The websites received the scores

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below average from the criteria of general information, information regarding international patients, photo galleries, appointment system and the information regarding treatment follow up.

Conclusion: It is believed that the health care institutions' that provide service in the field of medical tourism rearranging their websites considering the elements under the analysed criteria and correcting the deficiencies will affect the use of international patients and the promotion and the images of the institutions positively.

Keywords: Health tourism, medical tourism, websites of the healthcare facilities

INTRODUCTION

The coastal tourism, which is called mass tourism, has been losing its importance becoming ordinary and it has been affecting the sustainable competitive powers of countries negatively. Thus, in order to have a voice and to obtain a competitive advantage in the tourism sector, many countries tend to canalize to alternative tourism types. Medical tourism, which has been demanded as an important tourism product in recent years, has started to become an important source in terms of tourism receipts. While the tourism receipt that an international tourist brings in through mass tourism is between the range of 750 and 800 US Dollars, the receipt that a tourist brings in through medical tourism is about 8500 US Dollars (SATURK, 2016).

The activities of health tourism are mainly grouped under four sections: (a) medical tourism, (b) thermal tourism, (c) senior tourism and (d) accessible tourism (Karamustafa, 2016). According to the research by the World Tourism Organization, while the 53% of tourism actions are for entertainment and vacation and 23% for business and profession, 27% of them are for health, belief and other purposes (UNWTO, 2016). The reasons for patients' preference abroad in health tourism is stated to be low costs, quality, the fact that services have not been provided or forbidden in their country, geographical closeness or cultural ties. The reasons why medical tourists prefer Turkey is stated to be geographical closeness, service quality and low cost (Binler, 2015). One of the top factors in increasing medical tourism is the price differences between countries (www.saglikturizmi.gov.tr).

Maifredi et. al (2010) state that 4% - 5% of internet searches around the world are related to health. Today, as a result of the rapid improvement in information technology, medical tourists have the opportunity of reviewing the country and healthcare organization that they plan to receive

healthcare service in detail through the websites. This situation requires that health care institutions and intermediary firms conducting medical tourism keep their websites suitable for medical tourism and up-to-date.

1. BACKGROUND

1. 1. Medical Tourism

Medical tourism is to travel to other countries for the purpose of diagnosis, treatment and rehabilitation. Although the main purpose is "treatment," patients take advantage of services such as accommodation, catering, transportation and travel program, which are provided by tourism sector (Tengilimoğlu, 2013).

International patients are people who demand international healthcare services to recover from a health problem or to be healthier, and they are evaluated in the health group of medical tourists, tourist health and refugees. The main difference between the concepts of medical tourist and tourist health is that the only purpose of the first one is health and of the second is entertainment, business and other activities (Tontuş and Nebioğlu 2018). Due to reasons such as high treatment expenses in their own countries, long waiting periods for treatment or operation and demands some illegal procedures (abortion, gender-change, euthanasia, etc.), people have been increasingly tending to medical tourism (İçöz, 2009; Khafizova, 2011; Yavuz, 2011).

Türkiye's infrastructure opportunities, accredited health care institutions, quality healthcare services, specialists, advanced technology, and the fact that it provides almost any kind of treatments such as aesthetic surgery, hair implant, eye surgeries, in-vitro fertilization, open heart surgery, dermatological treatments, check-up, cancer treatments, otorhinolaryngology, dialysis and cardiovascular surgery, gynecology, neurosurgery, orthopedics, dental, spa and physical therapy and rehabilitation through convenient and competitive price advantages reveal that it has had more part in medical tourism day by day (General Directorate of Health Services, Department of Tourism (GDHSDT), 2013; İçöz, 2009).

The accreditations of health facilities in terms of international medical tourism help international patients choose health care institutions and they also reveal how much countries are ready for international medical tourism. Joint Commission International (JCI) has come into

prominence among the institutions active in this field. One of the most important advantages of Türkiye in medical tourism is that there are 34 health facilities accredited by JCI as of 2022. In addition, there is a total of 1950 institutions in Türkiye rewarded with Health Tourism License by the Ministry of Health. 444 of them are intermediary institutions, 379 private healthcare facilities, 126 public healthcare facilities, 37 public university healthcare facilities, 29 foundation university healthcare facilities and 1379 private health facilities (GDHSDT, 2022).

According to Turkish Statistical Institute (TUIK) data, Turkey hosted 662.087 health tourists in 2019, and the receipts obtained from these visitors was determined as 1.065.105 USD.

According to the data of the Kayseri Provincial Directorate of Health of 2019, 825 out of 3912 international patients arrived as part of medical tourism and 3087 as part of tourist health. 3213 of the international patients received service from private healthcare facilities and 699 from public healthcare facilities. The distribution of the services provided in Kayseri province in terms of diagnosis is given in Table 1.

Table 1 The Distribution of the International Patients Receiving Service in Kayseri

DEPARTMENT	Tourist Health	Health Tourism	Total Patient Number
Cardiology	128	25	153
Dentistry	392	43	435
Emergency Service	385	0	385
Gynecology	194	61	255
Cardiovascular Surgery	15	4	19
Ophthalmology	341	25	367
Pediatrics	121	93	214
Internal Diseases	298	30	328
ENT	163	20	183
Other	1059	515	1570
TOTAL	3096	816	3912

Reference : Kayseri Provincial Directorate of Health (2019)

1.2. Medical Tourism and Websites

Today, the environment including information intensely and readily is the internet and the most important part of the internet is websites (Uçak, 2009). They are important promotion tools ensuring the institutions providing service worldwide to communicate and maintain

communication with their audience. Websites are a rapid, efficient and cheap method for organizations to introduce their services to both the society they are in and to the world.

It is very important for all organizations acting in the field of health tourism to introduce the services they provide and their outstanding aspects to the world through information technologies. In 2011, the Turkish Commercial Code obliged capital companies to build a website containing all the official information of the company. Beyond a legal obligation, today, this situation is the building block for companies to continue their existence (Kaya, 2018:1670). The environment including the information intensely and ensuring quick access to information is the internet, thus the way of reaching new markets is the websites.

One of the most important fields in which digital communication is needed to be used intensely and efficiently is health tourism. People who will receive healthcare services in places where they do not reside desire to have detailed information about the place they will go. They can reach the places that they cannot reach through traditional communication channels through digital communication channels at less cost and quickly, and the information that health tourists need can be provided in more detail (Öksüz and Altıntaş, 2017: 63).

It is required for healthcare facilities to use their official websites efficiently since advertising is legally forbidden in healthcare services, a great amount of the health expenses of individuals is healthcare facilities and the level of internet use in the society has increased.

In research conducted in the USA it was determined that 10 million people a day used websites to get information in the field of healthcare. The rates of the health issues adults searched about on the internet were stated respectively as 64% for diseases, 51% for exact medical behavior and processes and 29% for search for private healthcare facilities or physicians (Dolliver, 2016). Therefore, it is possible to state that healthcare facilities using their official websites efficiently and managing them can increase their recognition level and attract both national and international patients to their healthcare facilities.

No other communication tools except for websites can reach every corner of the world 24/7. Therefore, by using their websites, healthcare facilities should transmit all their official information to their patients, patient relatives, their investors and other partner groups. Introducing official information to partner groups and to the public creates sense of reliability and sincerity in

the target audience and makes a positive impression about the institution. Hence, it can be stated that healthcare facilities are responsible for any kind of information they provide on their website in terms of creating a reliable and respectable healthcare facility image (Yurdakul and Öksüz, 2007).

Woodman (2009) points out that making an easy and reliable contact with key people is important for success in health tourism. The reliance of health tourists on the healthcare facilities/healthcare professionals they receive service from can be improved through efficient communication activities. Health tourists can learn about the information such as the service quality of the healthcare institution they will receive service, the state of the medical technology, the design of the healthcare facility room they will stay and etc. more detailed through the images and patient comments on the websites. Institutions providing service in the field of medical tourism can reach the tourists more easily and without any cost, and they can affect the travel decisions of the tourists by introducing their services. Considering that today the first places where health tourists can search for information are websites like other tourists, it is clear that websites are at great importance in medical tourism.

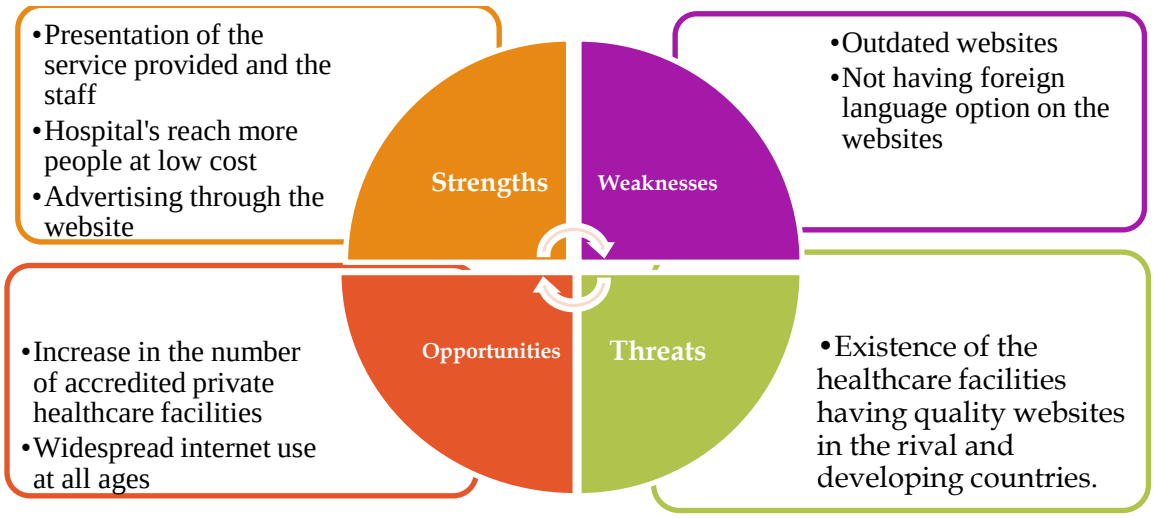

Figure 1. Effects of Websites on Health Tourism

Reference : Kopmaz and Kılıçkaya (2018), Özel Hastane Web Sitelerinin Sağlık Turizmi Kapsamında Analizi, T.C. Sağlık Bakanlığı Sağlık Hizmetleri Genel Müdürlüğü.

2. RESEARCH METHODOLOGY

The method of this research is the content analysis, which is one of the qualitative research methods. Content analysis is the analysis performed systematically, neutral and quantitative in order to analyze a certain number of written, visual or audial material according to the criteria determined in advance (Nakip and Yaraş, 2016: 126) and to measure variables (Wimmer and Dominick, 2000, s.135–136).

The websites of a total of 17 healthcare institutions located in Kayseri province that had the right of obtaining the Health Tourism License awarded by the Ministry of Health were included in the study. 1 of the institutions was public hospital, 1 public university, 9 private healthcare facilities and 6 oral and dental health clinics. The study is not required ethics committee approval since it is exclusive of the research requiring ethics committee approval (trdizin.gov.tr, 2022).

The evaluation form, which was developed by Samadbeik et. al. (2017) and adopted into Turkish by Kaya et. al. (2018), was used in the analysis of the websites. Since it was determined that many healthcare facilities in Türkiye did not give information about the prices and costs of their services on their websites, it was excluded from the evaluation. After the necessary literature review and receiving the expert opinion, the evaluation form was qualified for the evaluation of the websites of the healthcare facilities having the Health Tourism License, a new checklist with 66 items was developed, and the analyze was carried out under 10 main criteria:

- **Information regarding the promotion of the healthcare facility:** Information of the organizational structure and the departments and equipment of the facility
- **General information for patients:** The presentation of the patient rights and the rules to be followed.
- **Information regarding international patients:** The presentation of tourist places and insurance companies for international patients.
- **Information regarding physicians:** The presentation of the specialties of the physicians and the information of communication and working hours.
- **Information regarding appointment system and treatment follow**-up: The presentation of online appointment, complaint and live support applications.
- **Information regarding news and statistics:** The presentation of the satisfaction of international patients and the applications performed in the facility.

- **Information regarding photo galleries:** The presentation of the facility and tourist places via images.
- **Information regarding communication and transportation to the healthcare facility:** The presentation of all communication channels.
- **Presentation in different ways:** Alternative languages and finding different ways of presentation.
- **Information regarding technical issues:** The presentation of the elements that make the website use easy

In order to present all criteria in a single diagram, the criteria were standardized by being transformed to a 100-point system. While standardizing, the maximum value that each item analyzed under each criterion could take was accepted as the number of the healthcare facilities (17), and values of one unit were calculated for the 100 standardization and it was calculated as the criterion would be single score. For instance, under the criterion in Table 2, a total of 10 items were analyzed. The total value that can be obtained from the items is 170. 100/170 results the value for one unit. In the Table, the multiplication of the total digit under the condition "available" with the unit value results the standardized score of the first criterion. 100/170*97= 57,1.

3.FINDINGS

When Table 2, which includes the presentations of the information about the promotion on the websites of the 17 healthcare facilities in Kayseri having the Health Tourism License by the Ministry of Health are analyzed, it is seen that there are deficiencies on the websites in the sections of the floor plans that are for the patients to get information before they come to healthcare facilities and the presentation of the frequently asked questions. It is also determined that administrative staff are not introduced sufficiently while presenting the medical managerial staff. Most of the institutions present the information about the mission, vision, history, organization chart, modern equipment, inpatient bed availability and car park. All institutions include the presentation of the information regarding the medical departments and procedures on their websites.

Table 2. Information Regarding the Promotion of the Healthcare facilities

Features Regarding the Subject	Available	Not Available

	Digit	%	Digit	%
The presentation of the healthcare facility history from the establishment to present	14	82,4	3	17,6
The presentation of the healthcare facility floor plan	3	17,6	14	82,4
The introduction of the healthcare facility administrative staff	7	41,2	10	58,8
Presentation of the modern equipment available in the healthcare facility	10	58,8	7	41,2
Presentation of the current departments and specialties in the healthcare facility	17	100	0	0
The presentation of the mission and vision of the healthcare facility	15	88,2	2	11,8
Car park information	9	52,9	8	47,1
Organization chart	11	64,7	6	35,3
Inpatient bed availability	9	52,9	8	47,1
Frequently asked questions	3	17,6	14	82,4

Table 3. General Information for Patients

Features Regarding the Subject	Available		Not available	
	Digit	%	Digit	%
Stating patient rights	11	64,7	6	35,3
Presentation of the basic medical information to patients	17	100	0	0
Availability of useful medical links	5	29,4	12	70,6
Presentation of the hygiene codes of the healthcare facility	11	64,7	6	35,3
Information about hospital-acquired infection	0	0	17	100
Mortality rates of the healthcare facility	0	0	17	100
Information about patient confidentiality	13	76,5	4	23,5
Rules to be followed during the hospital stay	8	47,1	9	52,9
Rules that visitors must follow	8	47,1	9	52,9
Rules to be followed in the patient admission process	4	23,5	13	76,5

Table 4 includes the results of the analyze regarding international patients. It is determined that the presentation of insurance contract list for international patients is insufficient on most of the websites. Although the presentation of the maps for the transportation to the healthcare facility is available in all websites, the presentation of the touristic destinations, hotels, restaurants and places of entertainment and the transportation ways to these places is insufficient.

Tablo 4. Information Regarding International Patients

Features Regarding the Subject	Available		Not available	
	Digit	%	Digit	%
Presentation of the touristic places in the city and the region	6	35,3	11	64,7

Presentation of the transportation to the healthcare facility	17	100	0	0
Presentation of the maps to transport to the touristic places	3	17,6	14	82,4
The presentation of the hospitality services in the healthcare facility for international patients	3	17,6	14	82,4
The presentation of the hotels, restaurants and other famous entertainment places of the city	3	17,6	14	82,4
The presentation of the insurance contract list for tourists	12	70,6	5	29,4

When Table 5, which contains the information about the physicians, was analyzed, it is seen that the license verification for physicians were presented only in public healthcare facilities and the presentation of the academic successes, awards and work schedules of the physicians is not sufficient. While it was seen that search for names and specialties is available on the websites of the healthcare facilities having a lot of departments, and the information of the education and communication information of the physicians is available on most of the websites.

Table 5. Information about the Physicians

Features Regarding the Subject	**Available**		**Not available**	
	Digit	**%**	**Digit**	**%**
Physician license verification	2	0	15	100
Specialty and graduated institution	16	94,1	1	5,9
Academic success and prestige awards	5	29,4	12	70,6
Searching for names and specialties	9	52,9	8	47,1
Work schedules of the physicians in healthcare facility clinics	8	47,1	9	52,9
Contact information	12	58,8	5	41,2

When Table 6, which includes information about appointment system and treatment follow-up, is analyzed, it is seen that most of the websites enabled their patients to create, follow and cancel appointments, to access laboratory and imaging results, record the desires and complaints. It is also observed that the feature of asking questions to physicians online is available on the half of the websites but the coordination ways for rehospitalization are not presented on any of the websites.

Table 6: Information Regarding Appointment System and Treatment Follow-up

Features Regarding the Subject	**Available**		**Not available**	
	Digit	**%**	**Digit**	**%**
Recording appointments Several clinics	13	76,5	4	23,5

Recording appointments Imaging services	3	17,6	14	82,4
Providing tracking number	9	52,9	8	47,1
Changing or cancelling the appointment	9	52,9	8	47,1
Tracking the complaints	9	52,9	8	47,1
Coordination ways in rehospitalization	0	0	17	100
Medical counselling (Asking questions to physicians online)	8	47,1	9	52,9
Recording requests and personal questions	12	70,6	5	29,4
Viewing laboratory results on the internet	10	58,8	7	41,2

Table 7 includes the results of the analysis of the information regarding news and statistics. It is seen that none of the websites include the results of the patient satisfaction research, only one healthcare facility presents the statistics regarding international patients. Information regarding healthcare facility publishing and the satisfaction states of international patients is insufficient, but most of the websites include news on the improvements in healthcare services.

Table 7: Information Regarding News and Statistics

Features Regarding the Subject	**Available**		**Not available**	
	Digit	**%**	**Digit**	**%**
Statistics of international patients	1	5,9	16	94,1
Monitoring and presenting the satisfaction states of international patients	5	29,4	12	70,6
The latest news on surgery and other medical procedures	10	58,8	7	41,2
The schedule of the publishing group and scientific meetings	4	23,5	13	76,5
Results of patient satisfaction research	0	0	17	100

The results of the analysis of the information regarding healthcare facilities' photo galleries are given in Table 8. The websites of all healthcare facilities include photographs of the general view of the healthcare facilities. While most of the websites include photographs of clinics and services, it is seen that operating theatre photographs are insufficient and only two websites include surgery photos without the image of patients in their catalogues prepared for international patients. It is seen that the section of "us in the press", which contains the activities of the healthcare facilities or news about physicians' advice, is not available on the site map as well but the "announcements" sections of many healthcare facilities include these news. It is also found that most of the healthcare facilities that aim to provide service to international patients do not present introductions and photographs of the tourist destinations in the region on their websites. It is determined that the

websites of most healthcare facilities do not include the 360-degree virtual tour that today's institutions use to introduce their place and provide convenience for patients

Table 8: Information Regarding Photo Galleries

Features Regarding the Subject	Available		Not available	
	Digit	%	Digit	%
Photos of the operating theatres in the healthcare facility	2	11,8	15	88,2
General view of the healthcare facility	17	100	0	0
Surgery photos	2	11,8	15	88,2
Photos of the touristic places	6	35,3	11	64,7
Photos of the facility such as clinics and services	13	76,5	4	23,5
360-degree virtual tour	3	17,6	14	82,4
Our healthcare facility in the press	9	52,9	8	47,1

When Table 9 is examined, it is found that the websites of all healthcare facilities include contact information completely, some websites have deficiencies in the presentation of fax numbers, but many websites have deficiencies in presenting the alternative transportation ways to the healthcare facility.

Table 9: Information Regarding Communication and Transportation to the Healthcare facility

Features Regarding the Subject	Available		Not available	
	Digit	%	Digit	%
Contact numbers of the healthcare facility	17	100	0	0
Email address of the healthcare facility	17	100	0	0
Full address of the healthcare facility	17	100	0	0
Fax number of the healthcare facility	10	58,8	7	41,2
Social network accounts	17	100	0	0
Information regarding the alternative transportation ways to healthcare facility	7	41,2	10	58,8

Table 10 includes the analysis results of different presentation choices in terms of language and the impaired on the healthcare facility websites. It is determined that all the websites include different language options, they can be translated into minimum 2 and maximum 17 languages, but none of the websites include audio descriptions for those visually impaired or sign language in the videos for those hearing impaired.

Table 10: Presentations in Different Ways

Features Regarding the Subject	Available		Not available	
	Digit	%	Digit	%

Access for the impaired, audio description	0	0	17	100
Translations to different languages	17	100	0	0
Number of language options	Minimum 2 Maximum 17			

Table 11 presents the technical analysis results of the websites. It is found that all websites include the site map and enable to print the page, and most of the websites present the date of update and enable to search in the site. However, none of the health care facilities present the number of people visiting their websites.

Table 11. Information Regarding Technical Issues

Features Regarding the Subject	**Available**		**Not available**	
	Digit	**%**	**Digit**	**%**
Website map	17	100	0	0
In-site search	9	52,9	8	47,1
Date of the latest update of the website	12	70,6	5	29,4
Printing the pages of the website	17	100	0	0
Number of the visitor of the website	0	0	17	100
	55			

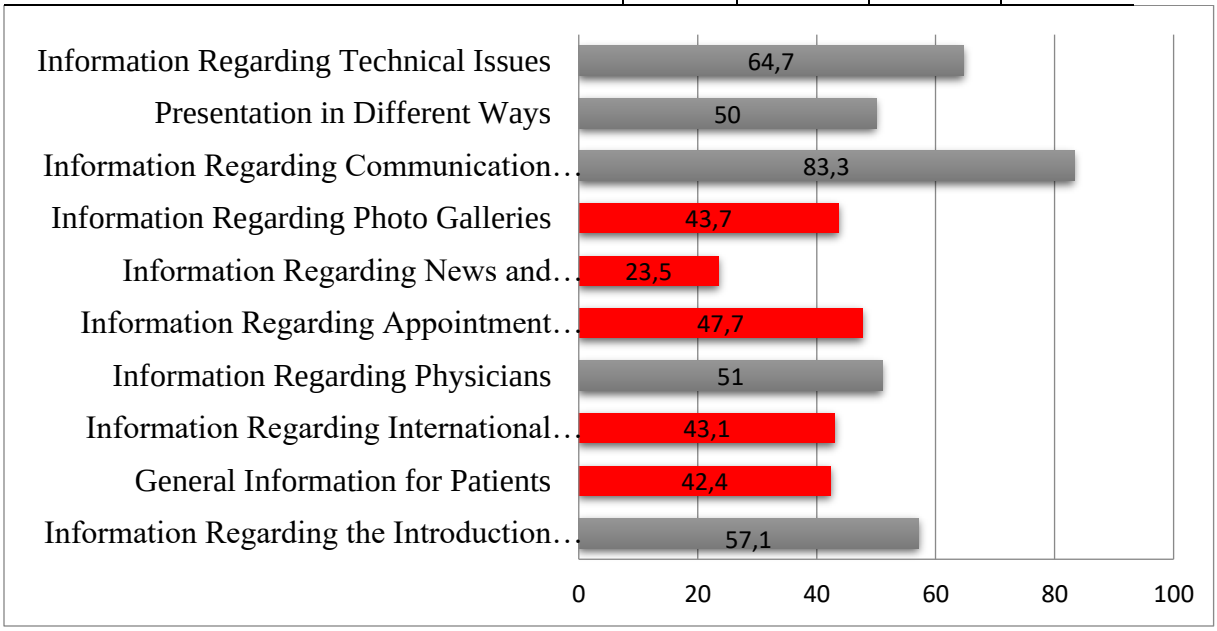

Figure 2. The standardized presentation of the criteria analyzed regarding the websites of the healthcare facilities.

Figure 2 includes the standardized forms of the criteria considered while analyzing the websites of the healthcare facilities having health tourism license. It is found that the criteria of news and statistics, general information for patients, information regarding international patients, photo galleries and the information regarding appointment system and treatment follow-up are below the average score. The criteria having 50 points and above are respectively presentation in different ways, information regarding physicians, information regarding the introduction of the healthcare facility, information regarding technical issues and information regarding communication and transportation to the healthcare facility.

4. DISCUSSION

In many studies conducted up to today, it is seen that the web pages of health care institutions have been evaluated by using check lists including the features required to be stated regarding the subject in terms of several qualifications such as health tourism, public relations, promotion or being official communication tool.

It is stated in the study conducted by Uğurluoğlu (2009) in which the website features of public and private healthcare facilities in Istanbul has been analyzed that 97,5% of the healthcare facilities present contact information, 49,4% general health information and the presentation of the specific links on the websites is very little (17,9%). The information Uğurluoğlu has provided is similar to this study. While it is seen that the presentations of contact information and basic medical information are complete on all websites of the healthcare facilities included in the study, there are deficiencies in the presentation of useful medical links.

Birdir and Buzcu (2014) have evaluated the health care institutions having JCI accreditation in terms of medical tourism. They state that the rate of the opportunity to access websites by foreign languages, giving information about location and communication, and presenting partner institutions and making online appointment are high, but, as in this study, the prices and costs of the services are not stated. It is also stated that patient satisfaction research exist on the websites at the rate of 17% and there is no notification of the number of the visitors to the

website and no information is provided about the presence of the access certificate for the impaired. The results are similar to the findings in this study.

Kopmaz (2016) has analyzed the websites of the institutions providing oral and dental healthcare services, and states that the subgroups of communication, patient services and technical features are better, and most of the websites provide language options and online appointment system. In addition, the principle of suitability for disabled individuals is taken into consideration on none of the websites. These findings are in line with the findings which were obtained from the websites analyzed.

Öksüz and Altıntaş (2017) have analyzed the websites and social media accounts of the healthcare facilities in Istanbul having JCI accreditation in terms of using digital communication, and they state that they are used for information purposes rather than digital communication. In this study, it has been determined that all healthcare facilities analyzed have social media accounts and they are used for the purposes of communication and information.

The results of the study that Moghavvemi et. al (2017) conducted to analyze 51 private hospitals engaging in medical tourism in India, Malaysia and Thailand are as following: hospitals in India and Thailand present the photos or videos of the technological equipment of their facilities, patient references and satisfaction survey results on their websites more frequently when compared to the hospitals in Malaysia. Like hospitals in Malaysia, the presentation rates of these issues on the websites of the healthcare facilities in Kayseri is low. This is thought to be due to the stricter medical advertising regulations in Turkey and Malaysia than in India and Thailand.

Köksal et. al. (2012) have analyzed the web pages of private and public healthcare facilities as health communication tool, and they have concluded that private healthcare facilities use their web pages more efficiently than public healthcare facilities. It is seen that the English versions of the websites of the two public healthcare facilities included in this study have the section of international health tourism, maps are presented for touristic places and transportation, and they also have an introductory video and a book prepared in English.

Kaya et. al. (2018) have determined in their study evaluating the web pages of healthcare facilities in terms of health tourism that the web pages of nearly all 37 healthcare facilities in Turkey accredited by JCI provide healthcare facility history, information of staff and healthcare

facility, information of healthcare staff and administrative staff, online appointment, photo gallery and all contact information including the social media, but do not provide explanatory information regarding the cost of the healthcare services provided.

In their study of Analyzing of the Current Websites of the City Healthcare facilities, Kaya and Filiz (2018) have analyzed the websites of eight city healthcare facilities in terms of 10 criteria, which is analyzed in this study, and have scored by standardizing them. The websites have not obtained the maximum score from any of the criteria. While the criterion of the information regarding appointment system and treatment follow-up has obtained the highest score, the criterion of information for international patients has obtained the lowest score. These given results are different from this research results. However, in this study, while communication and transportation to the healthcare facility obtain the highest score, news and information regarding statistics obtain the lowest score. It is believed that this is because while websites of only 8 city healthcare facilities located in different cities have analyzed, the websites of a total of 17 health care facilities including private and public healthcare facilities and oral and dental health centers are included in this study.

In a study analyzing the website performances of the healthcare facilities in Turkey, India and Ireland in terms of public relations and publicity, Özsarı et. al. (2016) state that healthcare facilities in Ireland use their websites efficiently and healthcare facilities in Turkey and India use their website efficiently at moderate level. Considering in terms of the rivals, it is important for the healthcare facility in Turkey to use their websites more efficiently to impact the target markets.

5. CONCLUSIONS AND RECOMMENDATIONS

The websites of the health care institutions in Kayseri having Health Tourism License were analyzed in terms of 10 criteria and scored by standardizing. Websites couldn’t get the maximum score from any criteria. While the information regarding communication and transportation to healthcare facility received the highest score, news and information regarding statistics received the lowest score. The websites obtained score below the average from the criteria of information regarding international patients, information regarding photo galleries, general information for patients, appointment system and the information regarding treatment follow-up.

Although most of the healthcare facilities analyzed were private healthcare facilities, it was concluded that the sections of the information regarding international patients were insufficient. It is recommended the deficiencies in presenting the destinations in Kayseri and its vicinity, hotels, restaurants and other famous entertainment places to be corrected especially for international patients.

The deficient presentation of the work schedules of the physicians can cause trouble for international patients when they are planning their journeys. The fact that physician license verification is not presented in many websites will not satisfy health tourists in terms of reliability. It is recommended these deficiencies to be corrected for the promotion of health tourism through websites.

The deficiencies in the presentations of the photos of the healthcare facilities and the touristic places in Kayseri to promote the healthcare facilities in Kayseri can prevent to attract the health tourists who want to be treated while having holiday. It is also recommended the feature of 360-degree virtual tour to be used to introduce the physical opportunities of facilities.

The deficiency in the presentation of the general information for patients is due to the fact that healthcare facilities do not present the information of hospital-acquired infection, rate of death and the hygiene principles of the healthcare facility. It is recommended these deficiencies to be corrected.

The fact that domestic and international patient satisfaction statistics are not introduced on the websites reveals that patients are not contacted adequately during and after treatment. This situation may be the indication that the quality measurement of the services provided is also insufficient. It is recommended that the research on patient satisfaction to be released on the websites of healthcare facilities in order for patients to get an opinion about the healthcare facility. By this way, patients will see that the healthcare facility aims at improving the quality and values it.

It is recommended that website designers correct the deficiencies regarding the printing of the pages, the number of visitors to the site, and the date of the last update, which are examined under the criterion of technical issues.

The criteria receiving score above 50 according to the standardized scores are respectively the presentation in different ways, information regarding physicians, information regarding the introduction of healthcare facilities, information regarding technical issues and information regarding communication and transportation to the healthcare facility.

It was found that all health care institutions subjected to the research in the content analysis enable access in foreign languages. The fact that healthcare facilities design and improve their websites in a way to enable access in foreign languages can be regarded as positive for both healthcare facilities and the improvement of medical tourism. On the other hand, the fact that the institutions provide public service and include everyone requires the presentation of different options in the access and use of the websites, but none of the websites provide access for the impaired. Not providing audio description for visually disabled individuals and the deficiency of the information regarding disabled patients causes difficulties for patients in reaching services and prevents them to know about healthcare facilities, services and service providers. In addition, each piece of deficient information causes negative effect in achieving its purpose. It is believed that healthcare facilities' correcting the deficiencies in their websites considering the features stated in the criteria will improve their institutional image both nationally and internationally. It is recommended healthcare facilities to include the promotion of the touristic destinations around and more information about travel and accommodation as well as the presentation of medical services on their websites for international patients.

Acknowledgement

The authors declare that they did not receive any funding or support for the present study and that there are no potential conflicts of interest related with it.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

Binler, A. (2015). *Türkiye'nin Medikal Turizm Açısından Değerlendirilmesi ve Politika Önerileri*. Kalkınma Bakanlığı, Sosyal Sektörler ve Koordinasyon Genel Müdürlüğü, Uzmanlık Tezi, Ankara.

Birdir, K. and Z. Buzcu. (2014). "JCI Akreditasyon Belgesine Sahip Olan Sağlık Kuruluşlarının WEB Sitelerinin Medikal Turizm Açısından Değerlendirilmesi". *Çağ Üniversitesi Sosyal Bilimler Dergisi*, 11(1), 1-19.

Dolliver M.(2006). "Is the Web Good For One's Health?" *Adweek* ;47:1

İçöz, O. (2009). "Sağlık Turizmi Kapsamında Medikal (Tıbbi) Turizm ve Türkiye'nin Olanakları", *Yaşar Üniversitesi Yayınları*, C:IV, No:14: 2257-2279.

Karamustafa, K. (2016). "Türkiye'nin Sağlık Turizmi Potansiyeli: Sorunlar ve Çözüm Önerileri". *Doğal 2016: Türkiye Doğal Beslenme ve Sağlıklı Yaşam Günleri Sözlü Bildiri*, 14-17 Nisan 2016, Antalya.

Karsavuran, S., S. Kaya, H. H. Yıldırım ve Ö. Özer. (2013). "Türkiye Medikal Turizm Değerlendirme Raporu". Türkiye Cumhuriyeti Sağlık Bakanlığı Sağlık Hizmetleri Genel Müdürlüğü Sağlık Turizmi Daire Başkanlığı.

Kaya, M., Kar, A. and Yılmaz, A. (2018). "Sağlık Turizmi Bakış Açısıyla Hastanelerin Web Sayfalarının Değerlendirilmesi", *II. Uluslararası Bilimsel ve Mesleki Çalışmalar Kongresi Bildiri Kitabı*, ss: 1670-1676.

Kaya, M., and Filiz, M.,(2018). "Investigation of The Current Web Sites of City Healthcare facilities", *Turkish Research Journal of Academic Social Science*, 1(1): 40-45, 2018

Kopmaz, B. (2016). "Ağız ve Diş Sağlığı Hizmeti Veren Sağlık Kurumlarının web Sitelerinin İncelenmesi", Marmara Üniversitesi Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi, İstanbul.

Kopmaz, B. and Kılıçkaya M. (2018), Özel Hastane Web Sitelerinin Sağlık Turizmi Kapsamında Analizi, T.C. Sağlık Bakanlığı Sağlık Hizmetleri Genel Müdürlüğü, Ankara.

Maifredi, G., Orizio, G., Bressanelli ,M., Domenighini, S., Gasparotti, C., Perini, E., Caimi, L., Schulz, J.P. and Gelatti, U. (2010). "Italian Healthcare facilities On The Web: A Cross-Sectional Analysis of Official Websites", BMC Medical Informatics&Decision Making, 10:17, http://www.biomedcentral.com/1472-6947/10/17

Moghavvemi, S., Ormond, M., Musa, G., Isa, C. R. M., Thirumoorthi, T., Mustapha, M. Z. M., Kanapathy, K.A. P. and Chandy, J. J. C. (2017). Connecting with prospective medical tourists online: A cross-sectionalanalysis of private hospital websites promoting medical tourism in India, Malaysia and Thailand. Tourism Management, 58, 154-163.

Nakip, M., and Yaraş, E. (2016: 126). Pazarlama araştırmalarına giriş. Ankara: Seçkin Yayıncılık.

Öksüz, B. and Altıntaş, V. (2017). "Sağlık turizminde dijital iletişim kanallarının kullanımı". *Seyahat ve Otel İşletmeciliği Dergisi*. 14(1): 59-75.

Özsarı, S. H., Hoşgör, H. and Hoşgör, D. G. (2016). "Hastane Web Site Performanslarının Halkla İlişkiler ve Tanıtım Açısından İncelenmesi: Türkiye, Hindistan ve İrlanda Örnekleri", *Acıbadem Üniversitesi Sağlık Bilimleri Dergisi*, 2016(4), ss:209-217

Samadbeik, M., Asadi, H., Mohseni, M., Takbiri, A., Moosavi A. and Garavand, A. (2017). "Designing a Medical Tourism Website: A Qualitive Study". *Iran J Public Health*, Vol. 46, No.2, Feb 2017, ss.249-257.

SATURK (2016), *Türkiye'nin Sağlık Turizmindeki Önemi*. T.C. Sağlık Bakanlığı Sağlığın Geliştirilmesi Genel Müdürlüğü, Ankara. http://www.saturk.gov.tr/tyst.php, Son Erişim (31.03.2022).

Tengilimoğlu, D. (2013). Sağlık turizmi. Ankara: Siyasal Kitapevi.

Tontuş, Ö. H., and Nebioglu, S. (2018). "Turkey as a Health Tourism Destination: Reviewing of 2015-2016 Data". *J Tourism Hospit*, 7(336), 2167-0269.

SHGMSTDB (2013). "Türkiye Medikal Turizm Değerlendirme Raporu", http://dosyasb.saglik.gov.tr/Eklenti/535,turkiye-medikal-turizm-degerlendirme-raporu-2013pdf.pdf (Erişim 31.03.2019).

SHGMSTDB (2022). "Sağlık Turizmi Yetki Belgesi Almaya Hak Kazanan Sağlık Tesisleri", https://shgmturizmdb.saglik.gov.tr/Eklenti/43774/0/yetkilendirilmis-saglik-tesisleripdf.pdf?_tag1=47A2BEDA76B78F1079B75F90C88FAE65EB099733 (Erişim 02.08.2022).

Uğurluoğlu, Ö. (2009). İstanbul'daki Hastanelerin Web Sitesi Özellikleri Üzerine Bir İnceleme. *Hacettepe Sağlık İdaresi Dergisi,* 12(1).

UNWTO (2016). UNWTO Tourism Highlights, [URL: http://www.e-unwto.org/doi/pdf/10.18111/9789284419029] (Erişim 24.04.2018).

Uçak N, and Çakmak T. (2009). "Web Sayfası Kullanılabilirliğinin Ölçülmesi: Hacettepe Üniversitesi Bilgi ve Belge Yönetimi Bölümü Web Sayfası Örneği". *Türk Kütüphaneciliği Dergisi* 2009;22, 278-298.

Yavuz, M.C. (2011). "Dünyada Sağlık Turizmi ve Adana Destinasyonu", Adana Sağlık Turizmi Derneği Yayınevi, Adana.

Yurdakul N.B. and Öksüz B. (2007). "Hastanelerde Bir Tanıtım Aracı Olarak Web Siteleri: İzmir İli Eğitim Hastaneleri ve Özel Hastanelerin Kurumsal Web Sitelerinin Kıyaslamalı Analizi". *Selçuk İletişim Dergisi* 2007;5,1:118-134.

Wimmer, D.D. and Dominick, J.R. (2000). Mass Media Research: An Indroduction. Belmont: Wadsworth Publishing Company.

Woodman, J. (2009), "Patients Beyond Borders Turkey Edition: Everybody's Guide to Affordable", *World-Class Medical Tourism, Healthy Travel Media*.

https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1172060

Int Journal Of Health Manag. And Tourism 2022, 7(3),352-362

JHMT Editorial

International Journal Of Health Management And Tourism

SYMBIOTIC RELATIONS: A NEW THEORY CONTRIBUTION TO ORGANIZATIONAL MANAGEMENT

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Received:07.09.2022
Accepted: 21.10.2022
Review Article

Abstract

Aim: Collaborations established by living things belonging to different species in nature are considered as "Symbiotic Relations" in Biology. The purpose of this research is to determine whether similar relationships exist at the healthcare, maritime and other industries and organizational level.

Methods: The research was handled in a descriptive type. In this context, the conceptual framework of the subject was created by examining the Management and Biology literature.

Results: In addition, whether the defined symbiotic relationships exist in existing industries has been exemplified by making inferences from observations and reports.

Conclusion: As a result of the research, it was determined that healthcare, maritime, tourism, textile, food, universities and technology industries mainly developed mutualism, partially commensalism and parasitism in a limited number of their relationships.

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Keywords: Symbiotic relationships in organizations, health tourism, maritime tourism, maritime piracy, win-win relationship

INTRODUCTION

In the Industry 4.0 and post-modern era we are in, organizations have developed different strategies, ways and methods in order to survive, gain competitive advantage and achieve their goals in a sustainable structure. Similar to the way in which some creatures belonging to different species act together for reasons such as survival or gaining advantage for habitat or food sources. The physical movement of two organisms or the fact that one organism depends on another organism is considered as a "Symbiotic Relationship" in the science of biology. The growth and development of two different organisms that lead a life dependent on each other constitute the basic parameters of a symbiotic relationship (Köksal, 2011; Zaccaro & Horn, 2003).

The applications of symbiotic relations, which are discussed in the science of biology, are also found in the ecosystem of the organization. Because in today's conditions where uncertainty, risk and the intensity of competition increase, organizations need to enter into symbiotic relationships with organizations belonging to different industries in order to survive and operate in a sustainable environment. In this context, some organizations establish new industrial areas by establishing symbiotic relationships such as mutualism and commensalism with organizations in different industries. Within the scope of this research, the symbiotic relationships established by organizations will be discussed in the conceptual framework. The aim of this study is to present a new perspective and paradigm that examines the behavior patterns of organizations in this post-modern era.

1. BACKGROUND

The Concept of Symbiotic and Definition: The concept of symbiotic is used to describe the relationship between two different creatures that live close to each other and are connected in certain ways, each providing certain benefits to the other (Oxford Learners Dictionary, n.d.). Types of symbiotic relationships are classified in three different ways in biology (Önal, 2021):

1. **Mutualism (+/+):** It is a relationship in which two or more species benefit mutually. All parties involved in this relationship ultimately benefit. The relationship between the crocodile and

Egyptian plovers can be given as an example of a mutualism relationship. In this relationship, the Egyptian plover cleans the crocodile's teeth and feasts on the leftover food, whilst the crocodile's teeth are cleaned. Another example of mutualism is the relationship between sea coral anemone and clownfish. With its burning tentacles, the anemone protects the mucus-skinned clownfish from its enemies. Clownfish also keep anemone-feeding fish away from the anemone.

2. Commensalism (+/0): One of the two cohabiting species benefits from this association (guest) while the other species (host) is unaffected. The classic example of commensalism is the relationship between pilot fish and sharks. Pilot fish move in with sharks and consume the leftovers from their prey. While the pilot fish benefit from this union, the sharks neither benefit nor harm. Another example, sucker-mounted remora fish cling to the shark and live without harming it. The fish is displaced by the shark's movement and feeds on its food scraps.

3. Parasitism (+/-): While one of the living things acting together in the parasitism relationship benefits, the other is harmed. In this union, the damaged creature is called the "host", and the harming organism is called the "parasite". Tapeworms, pinworms and ticks living in the bodies of animals such as horses, sheep and dogs can be given as examples of this type of relationship. While the parasite benefits in this relationship, the living things that act as hosts are harmed. Another example is plasmodium, a one-celled parasite, transmitted to humans by the female Anopheles mosquito. After passing into human blood, it develops in the liver and spleen. By passing into the blood, spores multiply rapidly in the red blood cells. Spores burst red blood cells, causing malaria attacks.

On the other hand, the concept of Industrial Symbiosis was explained by Van Berkel. Industrial Symbiosis, which is the business-to-business dimension of the Industrial Ecology concept, covers interactions between businesses. It is derived from the concept of "symbiotic relationship", which includes the exchange of energy and matter in order to create a common benefit among dissimilar species seen in nature. Businesses depend on the resources in the natural environment to continue their activities. At the center of Industrial Symbiosis studies is the recycling of waste produced by a facility and its use as a resource in other facilities (Van Berkel, 2009). In an ideal Industrial Symbiosis application, wastes and energy are used by other actors in the system; thus, the total raw material and energy inputs of the system and waste and emission

production are reduced (Chertow, 2000). Industrial Symbiosis, which is a concept developed to apply the efficiency of natural ecosystems to industrial systems, can also be defined as the establishment of mutually beneficial partnerships by industrial enterprises. This common use may include other resources such as energy, logistics, manpower, investment, water, etc., primarily wastes. Industrial Symbiosis applications provide benefits such as recycling of waste and by-products, reduction in resource use and environmental emissions, and efficient use of raw materials and energy. Eco Industrial Parks are an example of this collaboration. The Industrial Symbiosis model has been fully implemented for the first time in the Eco-Industrial Park in Kalundborg, Denmark. There was an exchange of groundwater, wastewater, steam and electricity as well as various other waste/residues between the main partners in Kalundborg (oil refinery, plasterboard plant, power plant, Kalundborg Municipality). Within the scope of this application, an average of 2.9 million tons of material was exchanged annually, water consumption was reduced by 25% and 5000 houses benefited from central heating operated with waste heat. This cooperation has significantly increased environmental and economic efficiency and has also provided benefits such as new employment opportunities, technological improvement, a significant reduction in waste management costs, and significant knowledge accumulation and sharing (EKOIQ, 2014).

The Concept of Organizational Symbiotic Relationship

Unlike biology, the concept of "Symbiotic Relationship" is defined in the organizational level as follows: Organizational Symbiotic Relationship represents the coming together of two or more industrial organizations that are physically close to each other and normally operate independently of each other. Symbiotic Relationship of organizations in the management industry is establishing long-term partnerships and working in solidarity that increase both environmental performance and competitiveness (Technology Development Foundation of Turkey, 2021).

Symbiotic Relations Detected at the Organizational Level

Within the scope of this research, organizations operating in various industries and their relationships have been examined and it has been determined that symbiotic relationships in the field of biology are also observed in the organizational ecosystem. Sectors that develop symbiotic relations at the organizational level are “healthcare, tourism, maritime and textile” organizations. These relationship patterns are given below.

Mutualism Relations in Healthcare Organizations

In "Mutualism", which is one of the types of symbiotic relationships, all parties that have different types and enter into a relationship gain equally to one another. This relationship is based on the win-win principle. Examples of organizational relationships developed within the scope of mutualism are as follows: Hospitals and hotels belonging to two different industry types as health and tourism, they establish a symbiotic relationship through the relationship and concept of "Health Tourism". Health tourism; is the visit of individuals to a country other than their country of residence in order to receive preventive, therapeutic, rehabilitative or health-promoting services (Tantuş, 2019). The symbiotic relationship established by health and tourism businesses through the "Health Tourism" activity is designed as follows: Before or after the treatment of a patient going from one country to another for treatment, tourism organizations also offer transportation, travel and hotel services. In this way, the patient both receives treatment in the visited country and can visit historical and touristic areas. As a result of this symbiotic relationship developed between the hospital and the hotels, the health institution in return for the health service it provides; on the other hand, the tourism business, generates income in return for the services it provides on issues such as accommodation, excursions, and transportation. Regarding health tourism, 662,087 people in 2019 and 388,150 people in 2020 came to Turkey from abroad for treatment, and it brought a revenue of 1.065.105 dollars in 2019 and 548.882 dollars in 2020 (Ushaş, 2021). This relationship, which the health and tourism sectors establish over the patient, can be evaluated within the scope of mutualism (win-win) relationship, which is one of the types of symbiotic relationships.

The symbiotic relationship developed by health informatics and biomedical institutions and textile enterprises through wearable health technologies is carried out as follows: Health institutions are developing sensors, software and other informatics tools to obtain data about the health of individuals. On the other hand, textile organizations produce textile products such as belts, socks, shoes, shirts, athletes, and baby diapers. These organizations belonging to both types establish a symbiotic relationship by combining the different products they have developed under the name of "Wearable Health Technologies" with a new concept such as "Smart Socks, Smart Shoes". In this way, both the healthcare and textile industry gains.

Another example to be given to the symbiotic relationships that have emerged in the field of health in recent years is the city hospitals. City hospitals, which have especially successful examples in Dubai and then established in Turkey, meet the needs of many people such as healthcare services, hotel services such as food and accommodation, data processing, parking lot, market and textiles, due to their structure. In addition, since the city hospitals are built within the scope of private-public cooperation, the Ministry of Health carries out health services on behalf of the public, and the construction company, which makes the hospital on behalf of the private sector, carries out cleaning, security and other support services. In this context, it is seen that there is a win-win symbiotic relationship with both the construction and the current organization.

Mutualism Relations in Different Organizations

The maritime sector is the locomotive of international trade and the global economy. About 80% of world trade by volume and more than 70% by value is transported by sea (United Nations Conference on Trade and Development, 2018). Recently, the efficiency of the seas has increased dramatically, especially in economic terms, and world trade has become increasingly dependent on the seas (Çetin, 2009). It is possible to observe symbiotic relationships between organizations providing different services within the maritime sector, which is an international sector in the globalizing world. It is much more difficult to survive in the maritime sector, which requires a larger capital, than many other sectors. Since the stopping of the ship propeller harms both the ship operating companies and many sectors working with ship management, in order to avoid this situation, both a competitive environment and symbiotic relations are observed in the sector. The symbiotic relationships developed by maritime organizations within the ecosystem they live in are as follows:

Another example of symbiotic relationships is “Cruise-Sea Tourism”. The concept of a “cruise holiday” juxtaposed with a “cruise” is relatively new (Papathanassis, 2019). A symbiotic relationship is established between cruise ships, which are maritime operations, and hotels and entertainment establishments, which are tourism organizations, under the name of "Maritime/Sea Tourism". This relationship includes many different sectors such as transportation, food, textile, entertainment, travel agency, health, sports, hotel accommodation, aviation, photography, cosmetics, jewellery, spa/wellness, car rental, and multi-faceted symbiotic relationships are carried

out. For example, many sectors are included on board of a cruise ship so that a passenger can travel in comfort and style on the cruise to the port of destination and without getting bored. In this way, the ship owners both earn income from the passengers of the ship, and tourism businesses that provide on-board services also earn income in return for the services they provide in areas such as restaurants, spa, entertainment, textiles, tours and transportation on board. Many of the above-mentioned organizations generate income by making agreements with ship owner organizations, not by the ship owner, but by the companies serving in different sectors, by continuing their on-board activities. This relationship established by the maritime and tourism sectors over passengers can be evaluated within the scope of "Symbiotic-Mutualism". As a result of this relationship, all parties gain. Another example of a symbiotic relationship reflected on the organizational level is the establishment of a symbiotic relationship and acting together by organizations belonging to two different types, such as the health and textile industries, through "Wearable Health Technologies". Wearable health technologies are electronic devices that can be worn, worn or attached to the body, which can obtain and save data on health conditions such as fever, pulse, blood pressure and stress of individuals at home or from where the person is, without going to the hospital, and transmit the desired data to the relevant health institutions (Lee and Lee, 2020; Phaneuf, 2021).

Crew working on ships in the maritime industry; everyday people face the danger of medium and high-risk maritime accidents such as work-related accidents (such as injury, loss of limb and death), injuries, shipwrecks, storms and poisonings. With the increase in the world's commercial ship fleet, the need for the "Maritime Health" sector and the organizations serving this sector has increased. There is nothing more important and invaluable than human presence on board. Although the issue of occupational health and safety is very important in the maritime sector, problems that require urgent first aid are experienced due to the nature of the work. For the world maritime industry, the continuity of follow-up of work accidents, emergency response and chronic diseases is a matter of importance for seafarers who are sailing for months at sea and often stay away from land. In addition, emergency response, air ambulance services, e-health and tele-health services for the mental and physical health of seafarers, which have become very important in recent years, are provided by the relevant organizations. While these services are provided by private health institutions, they generate income from the maritime sector, and the maritime sector

also benefits from this service. This reciprocal relationship provides benefits for both species. This relationship established by the maritime and health sectors over the seafaring crew can be evaluated within the scope of symbiotic-mutualism. In today's world, shipowners are getting into different branches of maritime business and investing in port installations, warehouses, logistics organizations, freight forwarders and ship brokering.

Examples of Organizational Commensalism Relation

While one of the two different species living together in the "Commensalism" relationship, which is one of the symbiotic relationship types, gains from this union, the other type (host) does not profit or suffer from this relationship. Examples of the commensalism relationship developed at the organizational level are as follows:

In the ecosystem formed around the health facility that serves the majority of the society, such as a hospital, businesses belonging to different types such as florists, taxi stands, canteens, restaurants, medical companies, and pharmacies are clustered. While there is no gain or loss for the health facility in this structure and relationship, businesses staying around the health facility benefit from this relationship by selling products and services to the patients who visit the hospital. Another example is, way stations and rest & service areas in which restaurants and other facilities located on the sides of intercity roads establish a symbiotic relationship with the bus companies that provide transportation services, allowing passengers to come to their own facilities. In this relationship, while the bus companies have no profit or loss, the way station facilities gain. Similarly, while peddlers and kiosks selling sandwiches and water near a football stadium are profitable, there is no gain or loss for the management of football stadium in this relationship.

Examples of Organizational Parasitism Relation

It is a union in which one of the living things benefits while the other is harmed. Although this type of relationship is maintained in other living things, it does not comply with ethical and moral rules at the organizational level. However, it can still be explained with the following example: The health sector and the medical sector are different industries. Instead of treating patients with medical supplies in their own institution, the doctor or other healthcare worker working in the hospital should direct patients to outside medical companies in unethical ways to earn more profits, and the fact that the doctor also receives a premium per patient from this relationship can be given

as an example. In this relationship, while the hospital suffers, the medical firm gains profit. In this relationship, while the hospital suffers, the medical firm gains profit.

Maritime piracy consists of any act of crime, violence, detention, rape or humiliation committed for private purposes by a private ship or its crew or passengers directed against another ship, persons or property on the high seas. Piracy may also be committed against a ship, persons or property outside the jurisdiction of any state; in fact, piracy is the first example of universal jurisdiction. It is known, although it is not explicitly stated, that maritime piracy is stronger than it states in piracy incidents occurring in certain parts of the world, or that there are intermediary institutions in the piracy market in some regions of underdeveloped countries and that they earn an income from it.

"Maritime Piracy", which sucks the blood of the maritime industry in a way, is the actions in which the ship's crew is detained for years, extortion events are experienced on the ship, the navigation devices are dismantled so that they cannot navigate in the sea, and the ransom is demanded, and all these actions take away the life, property and navigational safety of the ship crew. Maritime pirates earn unfair income from ship owners by using the ship's crew and a valuable asset, the ship. While one party benefits in this relationship, the other party suffers from it. This relationship established by the maritime and piracy industries over the maritime crew can be evaluated within the scope of "Symbiotic-Parasitism".

2. METHOD OF THE RESEARCH

This research was handled with a descriptive model. In this context, the related concepts of biological science and management science were handled comparatively and the definitions in biology were adapted to management science. Then, through this conceptual model developed, symbiotic relationships such as mutualism, commensalism and parasitism that emerged in industries such as health, maritime, tourism, food, education, and textile were discussed conceptually.

3. CONCLUSIONS AND RECOMMENDATIONS

The findings obtained within the scope of this research show that symbiotic relationships as a concept enter into different disciplines other than biology. Different sectors have emerged from the combination of many sectors that have chosen the path of solidarity to survive in the globalizing

world. It is possible to see similar relations in many sectors from international relations to the transportation sector. Based on a case study, Ashton (2011) explores how a cluster of several manufacturing firms achieves mutual benefits in terms of utilities sharing. For small businesses that adapt to the concept of symbiosis as a strategy tool, it can improve their performance (Rauch et al., 2016), survival rate, goodwill, growth potential, and reduce potential risks from firm size constraints (Banwo et al., 2015).

Acknowledgement

The authors declare that they did not receive any funding or support for the present study and that there are no potential conflicts of interest related with it.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

Ashton, W. S. (2011). Managing performance expectations of industrial symbiosis. *Business Strategy and the Environment, 20,* 297-309. https://doi.org/10.1002/bse.696

Banwo, A. O., Jianguo, D., & Onokala, U. (2015). Symbiotic Innovative Relationships of Small and Medium Enterprises. *Journal of Advanced Management Science***,** 3 (2), 128-131. https//doi.org/10.12720/joams.3.2

Çetin, O. (2009). Denizcilik Sektöründe Mukayeseli Bir Model. *Güvenlik Stratejileri Dergisi*, 5(10), 35-58.

Chertow MR, 2000. INDUSTRIAL SYMBIOSIS: Literature and Taxonomy. *Annual Review of Energy and the Environment*, Vol. 25(1), 13–337.

EKOIQ. (2014, Dec 20). *Bir Kaynak Verimliliği Aracı Olarak Endüstriyel Simbiyoz*. https://ekoiq.com/2014/12/20/bir-kaynak-verimliligi-araci-olarak-endustriyel-simbiyoz/

Kılıç, T. (2019). *Güncel Yönetim Paradigmaları*. İstanbul: AZ Yayınları.

Köksal, O. (2011). Organizasyonel Etkinliği Sağlamanın Yeni Yolu: Simbiyotik Liderlik. *C.Ü. İktisadi ve İdari Bilimler Dergisi*, 12(1), 55-72.

Lee, S. M., & Lee, D. (2020). Healthcare wearable devices: an analysis of key factors for continuous use intention. *Serv Bus,* 14, 503–531. https://doi.org/10.1007/s11628-020-00428-3

Önal, E. (2021, Sept 12). *"Köminütelerde Simbiyotik İlişkiler"*. Biyoloji Portali. http://www.biyolojiportali.com/konu-anlatimi/21/8/Komunite-Ekolojisi

Papathanassis, A. (2020). The growth and development of the cruise sector: a perspective article. *Tourism Review*, 75(1), 130-135. https://doi.org/10.1108/TR-02-2019-0037

Phaneuf, A. (2021, Nov 10). *Latest trends in medical monitoring devices and wearable health technology*. Business Insider. www.businessinsider.com/wearable-technology-healthcare-medical devices#:~:text=What%20is%20wearable%20healthcare%20technology,users'%20personal%20health%20and%20exercise

Rauch, A., Rosenbusch, N., Unger, J., & Frese, M. (2016). The effectiveness of cohesive and diversified networks: A meta-analysis**.** *Journal of Business Research*, 69, 554-568. https://doi.org/10.1016/j.jbusres.2015.05.011

Tontuş, Ö. (2019). *Sağlık Turizmi Nedir? Tüm Yönleriyle Sağlık Turizmi Kitabı*. Ankara: Saturk Yayınları.

United Nations Conference on Trade and Development (2018). *Review of Maritime Transport 2018*. United Nations Conference on Trade and Development Publication, Geneva. https://unctad.org/system/files/official-document/rmt2018_en.pdf

Ushaş. (2021). *Sağlık Turizmi Verileri*. https://www.ushas.com.tr/saglik-turizmi-verileri/

Oxford University Press. (n.d.). Symbiotic. *In Oxford Advanced Learner's Dictionary*. Oxford University Press. Retrieved November 4, 2021, from www.oxfordlearnersdictionaries.com/definition/english/symbiotic?q=symbiotic

Technology Development Foundation of Turkey. (2021). *Eko-Verimlilik Ve Endüstriyel Simbiyoz Faaliyetleri.* Retrieved October 22, 2021, from https://www.ttgv.org.tr/tr/ekosistem-gelistirme/devam-eden-projeler

Van Berkel R, 2009. Comparability of Industrial Symbioses. *Journal of Industrial Ecology*, Vol. 13 (4), 483–486.

Zaccaro, S. J., & Horn, N. J. Z. (2003). Leadership Theory and Practice: Fostering an Effective Symbiosis. *The Leadership Quarterly*, 14, 769-806. https://doi.org/10.1016/j.leaqua.2003.09.009

https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1183567

Int Journal Of Health Manag. And Tourism 2022, 7(3),363-376

JHMT Editorial

Internatıonal Journal Of Health Management And Tourism

THE RELATIONSHIP BETWEEN CONSPIRACY BELIEFS, FEAR OF INJECTION, ATTITUDE TOWARDS COVID-19 VACCINE, AND VACCINE HESITANCY

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Received: 03.10.2022

Accepted: 10.11 .2022

Research Article

Abstract

Aim: The main purpose of this study is to determine the relationship between conspiracy beliefs, fear of injection, attitude towards COVID-19 vaccine, and vaccine hesitancy.

Methods: A population-based cross-sectional research design was used in the study. The population of the study consisted of individuals over the age of 18 residing in Adana city center between January and March 2022. The data were collected from 496 people using the online questionnaire technique. SPSS 23 and AMOS 26 package programs were used in the analysis of the data.

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Results: The effect of co1nspiracy theories on COVID-19 on vaccine hesitancy over attitudes towards COVID-19 vaccines was found to be negative. Similarly, the effect of fear of injection on vaccine hesitancy on attitudes towards COVID-19 vaccines was found to be negative.

Conclusion: Therefore, the attitude towards the COVID-19 vaccine partially mediates the relationship between the conspiracy theories towards COVID-19, fear of injection, and vaccine hesitancy.

Keywords: Conspiracy Beliefs, Fear of Injection, COVID-19, Attitude, Hesitation

INTRODUCTION

Vaccines are one of the most reliable and cost-effective public health interventions ever implemented, saving millions of lives each year (Hajj Hussein et al., 2015; Ehreth, 2003). The most important way of transmission, spread and control of COVID-19 is widespread vaccination of populations (Altmann et al., 2020). After the genome sequence of SARS-CoV-2 was deciphered in early 2020 and the World Health Organization declared a pandemic in March 2020, scientists and pharmaceutical companies quickly started to develop a vaccine (Zimmer et al., 2020; Coustasse et al., 2021). After the positive developments regarding the approval of SARS-CoV-2 vaccines, it has been observed that there is increasing optimism that the pandemic will end through herd immunity (Omer et al., 2020). However, it has been stated that one of the biggest obstacles to achieving such a goal is vaccine hesitancy and skepticism around the world (Coustasse et al., 2021; Neumann-Böhme et al., 2020).

Concerns about the novelty, efficacy, and potential side effects of current COVID-19 vaccines have been reported as the main reasons for rejection or hesitation to date (Neumann-Böhme et al., 2020). Vaccine hesitancy is defined as a delay in vaccine acceptance or rejection despite the availability of vaccination services (World Health Organization, 2019; MacDonald, 2015). Vaccine hesitancy has been shown by the World Health Organization as one of the top 10 threats to global health in 2019 (World Health Organization, 2019). Vaccine hesitation; It has been reported to result from a complex decision-making process influenced by a wide range of contextual, individual and group factors such as communication, media, historical influences, religion, culture, gender, socioeconomic, political and geographical barriers, and vaccination experience, risk perception, and vaccination program design (MacDonald et al., 2015).

Vaccine hesitation; it has been reported that it causes the re-emergence of vaccine-preventable infectious diseases such as measles, polio and pertussis (Phadke et al., 2016). Vaccination hesitancy; It has been attributed to the "3 Cs" model, which indicates trust, peace of mind, and nonconformity (MacDonald, 2015). Lack of trust in vaccines and providers, complacency in the need for vaccines, and the lack of affordability and affordability of the vaccine are the main factors behind vaccine hesitancy (Shen and Dubey, 2019; De Figueiredo et al., 2020). Conspiracy beliefs can also lead to vaccine hesitancy, fueling distrust in governments, healthcare providers and the pharmaceutical industry, along with their known negative impact on human health behavior (Jolley and Douglas, 2014; Bertin et al., 2020).

It has been stated that conspiracy theories about the COVID-19 epidemic started early and these theories revolved around aspects of the virus being man-made (Romer and Jamieson, 2020). In addition, such harmful beliefs have been popularized to include concepts related to possible vaccines, such as forcing people to vaccinate by placing microchips in order to control them. In addition, claims that COVID-19 vaccines may cause infertility by limiting the growth of the human population have received great attention on social media (Romer and Jamieson, 2020; Shahsavari et al., 2020). It has been stated that such claims, circulating without any evidence on some social media platforms, have had a significant negative impact on the general public's attitude towards possible vaccines (Shahsavari et al., 2020; Ahmed et al., 2020).

Vaccine indifference has been associated with a lower risk of vaccine-preventable diseases and therefore more negative attitudes towards vaccines (French et al., 2020). In a study conducted in the USA; 50% of Americans stated that they were willing to receive the vaccine, 30% were unsure, and 20% refused the vaccine (Neergaard and Fingerhut, 2020). In another study on adult Americans; 58% of the participants stated that they intended to be vaccinated, 32% were unsure, and 11% did not intend to be vaccinated (Fisher et al., 2020). In this period, it is important to develop the strategies needed to prevent vaccine hesitancy against the COVID-19 vaccine on the basis of countries and to adopt a strategic approach. In the development of strategies, determining the factors that directly and indirectly affect vaccine instability and determining the relationships between these factors are among the first activities to be done. The main purpose of this study is to examine the mediating effect of the COVID-19 vaccine attitude in the effect of conspiracy theories

against COVID-19 and fear of injection, which gained importance during the pandemic period, on the COVID-19 vaccine hesitancy.

1. RESEARCH METHODOLOGY

1.1.Study Design, Procedures and Participants

In this study, a population-based cross-sectional research design was used. This cross-sectional study was carried out on individuals over the age of 18 residing in Adana city center between January-February-March 2022 using the online survey technique. The purpose of the study was explained to all participants beforehand. Basic instructions were given for completing the questionnaire and participants were informed that all their data would be recorded anonymously. It was stated that participation in the survey was voluntary. Data collected from 496 people in total were analyzed. 46.8% of the participants were male and 53.2% were female.

Instruments

The questionnaire consisted of six parts in total. The first part included information about the main purpose of the study, that the participation was voluntary and that personal information would be kept confidential. In the second part, statements revealing the socio-demographic characteristics of the participants are included. The third, fourth, fifth and sixth sections consist of the following two measurement tools used in the research.

Conspiracy Beliefs

Participants' thoughts on conspiracy theories about COVID-19 were determined using the "coronavirus conspiracy scale" (Freeman et al., 2021). The questionnaire consisted of 21 items measuring a general level of coronavirus conspiracy theories. The questionnaire, which was prepared in Turkish, was evaluated using a five-point Likert scale. High scores indicated high level of coronavirus conspiracy theories (Cronbach's alpha = 0.963).

Fear of Injection

The injection fear levels of the participants were determined using the “injection fear scale” (Freeman et al., 2021). The questionnaire consisted of 4 items measuring a general injection fear level. The questionnaire, which was prepared in Turkish, was evaluated using a five-point Likert scale. High scores indicated higher injection fear level. (Cronbach's alpha = 0.949).

Attitude towards COVID-19 Vaccine

Participants' attitudes towards COVID-19 were determined using the "COVID-19 attitude scale" (Mir et al., 2021). The questionnaire consisted of 4 items measuring a general attitude level. The questionnaire, which was prepared in Turkish, was evaluated using a five-point Likert scale. High scores indicated the level of positive attitude (Cronbach's alpha = 0.918).

Vaccine Hesitancy

Vaccine hesitancy of the participants was determined using the "vaccine hesitancy scale" (Shapiro et al., 2018). The questionnaire consisted of 7 items measuring a general level of vaccine hesitancy. The questionnaire, which was prepared in Turkish, was evaluated using a five-point Likert scale. High scores indicated a high level of vaccine hesitation. (Cronbach's alpha = 0.969).

1.2.Statistical Analysis

All statistical analyzes were performed using IBM SPSS 23 and AMOS package programs. First of all, descriptive statistics were made to reveal the demographic characteristics of the participants and the scores of the tested constructs (conspiracy theories against COVID-19, fear of injection, attitude and hesitancy to vaccine). Finally, structural equation modeling (SEM) was performed using the maximum likelihood estimation method to examine the model that included conspiracy theories for COVID-19, fear of injections, and attitude towards COVID-19 in vaccine hesitancy. That is, attitude towards the COVID-19 vaccine has been hypothesized to mediate the relationship between COVID-19 conspiracy theories, fear of injection, and vaccine hesitancy (see Figure 1 for the proposed model). All variables were standardized before the model was tested. The significance of the regression coefficients was determined by calculating the 95% bootstrap confidence interval. The bias-corrected bootstrap test with 10,000 bootstrap samples was used to examine whether the mediating effect exists.

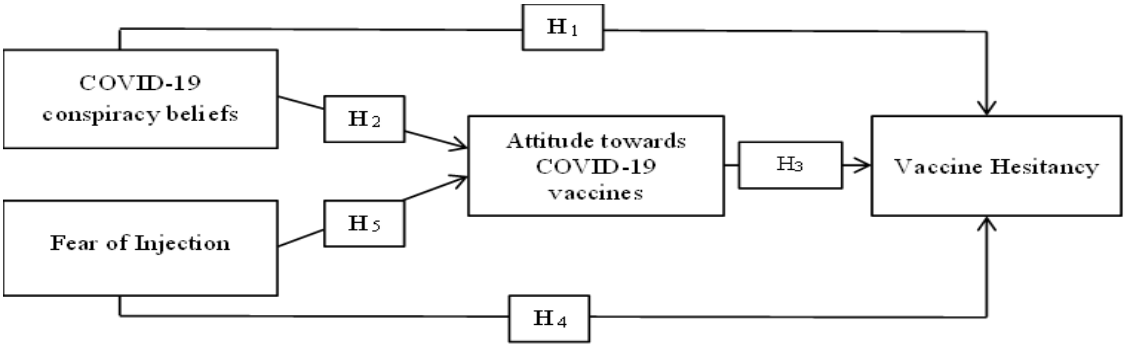


Figure 1. Theoretical model

2. FINDINGS

2.1. Demographic findings and descriptive statistics

Table 1 shows the demographic characteristics of the participants and t test and ANOVA test regarding conspiracy theories against COVID-19, fear of injection, attitude and hesitancy to vaccine.

Table 1. Sociodemographic characteristics of participants

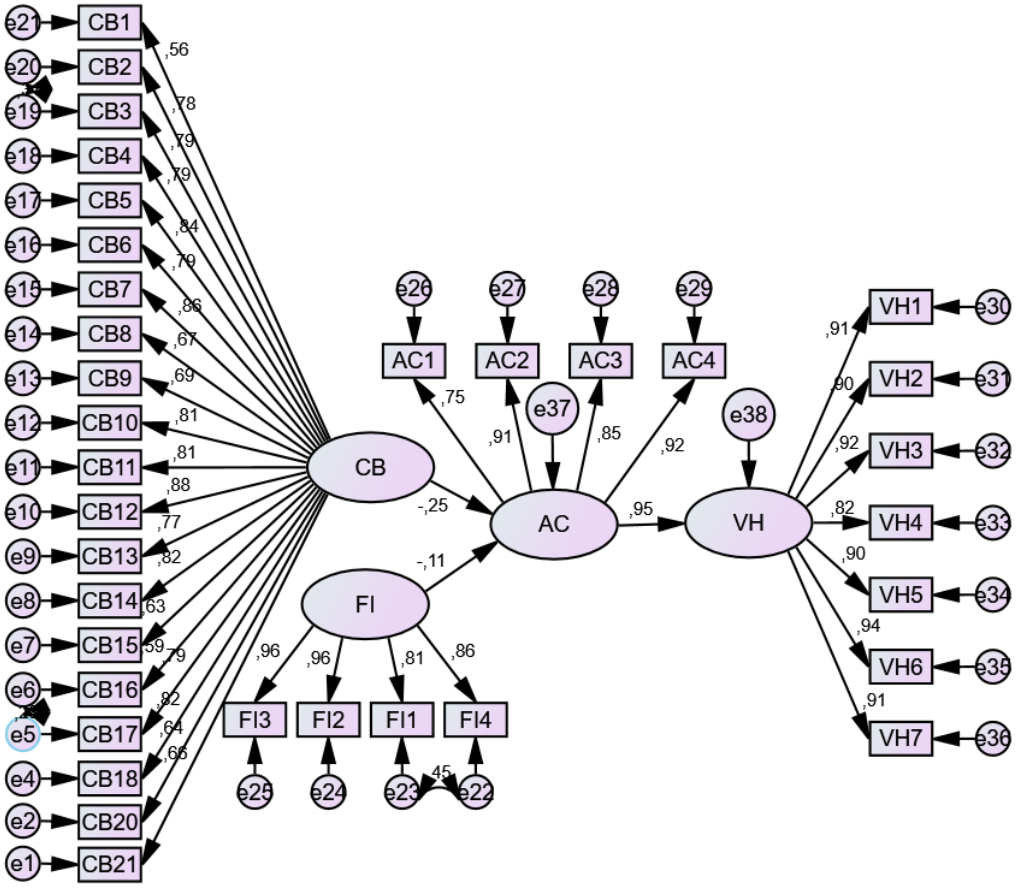
			Conspiracy Beliefs		Fear of Injection		Attitude Towards COVID-19 Vaccine		Vaccine Hesitancy	
Variables	**n**	**%**	**t Test/ Anova (t/F)**	**p**	**t Test/ Anova (t/F)**	**p**	**t Test/ Anova (t/F)**	**p**	**t Test/ Anova (t/F)**	**p**
Gender										
male	232	46,8	-3,209[a]	,001	-4,189[a]	,000	2,169[a]	,031	2,763[a]	,006
female	264	53,2								
Age										
18–25 years	154	31,0	2,126[b]	,076	6,373[b]	,000	5,423[b]	,000	6,147[b]	,000
26-35 years	151	30,4								
36-45 years	65	13,1								
46-55 years	61	12,3								
>55	65	13,1								
Job										
employee	33	6,7	2,253[b]	,029	4,878[b]	,000	3,811[b]	,000	3,832[b]	,000
officer	132	26,6								
retired	32	6,5								
housewife	69	13,9								
selfemployment	27	5,4								
student	117	23,6								
unemployed	36	7,3								
private sector employee	50	10,1								
Origin of COVID-19										
artificial virus	337	67,9	18,926[a]	,000	3,301[a]	,001	-5,423[a]	,000	-5,666[a]	,000
natural virus	159	32,1								

[a] Independent sample t-test
[b] ANOVA test

2.2.The Results of the Measurement Model

It was assumed that the reasoning between the variables in the research model can be explained. Confirmatory factor analysis was performed to test the validity of the scales used, and the structure of all scales were verified. Figure 1 shows the path analysis results and model fit for

the variables of conspiracy beliefs, fear of injection, attitude towards COVID-19 vaccine, and vaccine hesitancy.



[CMIN/DF=3.277, RMR=0.070, IFI=0.927, TLI=0.921, CFI=0.927, RMSEA=0,068]

Figure 2. The results of the full model

The results for measuring the reliability and validity of the measurement model provide various measures of the measurement model, as shown in Table 2. Since the CR values are greater than 0.7 and AVE values are greater than 0.50 the factors have high construct reliability.

Table 2. The items' estimate and the constructs' Cronbach's α, AVEs and C.R.s.

Constructs	Items	Estimate	Mean (±SD)	Cron. α	AVE	CR
Conspiracy Beliefs (CB)	CB21	,664		0,963	0,57	0,94
	CB20	,639				
	CB18	,824				
	CB17	,790				
	CB16	,587				
	CB15	,633				
	CB14	,821				
	CB13	,767				

Constructs	Items	Estimate	Mean (±SD)	Cron. α	AVE	CR
	CB12	,875	2,9083 (±0,97394)			
	CB11	,807				
	CB10	,810				
	CB9	,689				
	CB8	,671				
	CB7	,864				
	CB6	,789				
	CB5	,838				
	CB4	,791				
	CB3	,794				
	CB2	,783				
	CB1	,562				
Fear of Injection (FI)	FI4	,858	2,0519 (±1,13349)	0,949	0,81	0,92
	FI1	,806				
	FI2	,958				
	FI3	,957				
Attitude Towards COVID-19 Vaccine (AC)	AC1	,755	3,0282 (±1,23663)	0,918	0,74	0,86
	AC2	,907				
	AC3	,848				
	AC4	,916				
Vaccine Hesitancy (VH)	VH1	,908	3,0481 (±1,26398)	0,969	0,81	0,94
	VH2	,896				
	VH3	,923				
	VH4	,825				
	VH5	,903				
	VH6	,943				
	VH7	,910				

As a result of the path analysis, the overall reliability coefficient was found to be Alpha=0.900. Because $0.60 \leq \alpha < 0.80$, the scale is highly reliable. Ensuring validity and reliability shows the existence of a structural relationship between conspiracy beliefs, fear of injection, attitude towards COVID-19 vaccine, and vaccine hesitancy. The fit values examined show that the data fit the model well. Table 3 shows the results of the structural model.

Table 3. The result of the structural model

Hypothesis	Paths	Estimate	S.E.	C.R.	P	Result
Effect of Conspiracy Beliefs and Fear of Injection on Attitude towards COVID-19 Vaccine						
H_2, H_5, H_3	AC <--- CB	-,253	,058	-5,275	***	H_2 supported
	AC <--- FI	-,110	,043	-2,422	,015	H_5 supported
	VH <--- AC	,946	,059	20,684	***	H_3 supported

P<0.001

The effect of conspiracy beliefs about COVID-19 on attitudes towards COVID-19 vaccine was found to be negative and highly significant. The effect of fear of injections on the attitude

towards the COVID-19 vaccine was found to be negative and highly significant. The effect of the attitude towards the COVID-19 vaccine on vaccine hesitancy was found to be negative and highly significant. Table 4 shows the results of the indirect effect of the variables.

Table 4. Indirect effect of the variables

Indirect Path	Unstandardized Estimate	Standardized Estimate	p
CB --> AC --> VH	-,374	-,239	***
HI --> AC --> VH	-,126	-,104	***

P<0.001

The effect of conspiracy theories on COVID-19 on vaccine hesitancy over attitudes towards the COVID-19 vaccine is negative. The effect of fear of injections on vaccine hesitancy over the attitude towards the COVID-19 vaccine is negative.

3. DISCUSSION

A delay in getting the vaccine or refusal despite reaching the vaccine is defined as vaccine hesitancy and may be for one or more vaccines. Vaccine refusal is the case of not having any vaccination (Larsona et al., 2015). Despite the known positive effects of vaccine applications on public health; Vaccine hesitancy, which is increasing day by day all over the world, is due to the combination of many social, cultural, political and personal factors (Kestenbaum and Feemster, 2015).

Vaccination hesitancy is seen as an important obstacle to the vaccination of the entire population against infectious diseases. Globally, vaccine safety concerns coinciding with the rapid development of COVID-19 vaccines are contributing to increased vaccine hesitancy. At the same time, research shows that loss of trust in governments and healthcare providers is a major factor in the development of a range of beliefs and behaviors that give rise to vaccine hesitancy. The World Health Organization defines vaccine hesitancy as “hesitating or not accepting vaccines despite the availability of vaccination services”. Accordingly, the extent of vaccine hesitancy refers to situations where “vaccination acceptance in a given setting is lower than would be expected given the availability of vaccination services”.

It is important to determine the relationships between the factors affecting the COVID-19 vaccine hesitancy and to develop the necessary interventions in this regard in controlling the epidemic. In this study, it was aimed to determine the relationships between conspiracy beliefs towards COVID-19, fear of injection, attitude towards COVID-19 vaccine, and vaccine hesitancy.

As a result of the path analysis, the overall reliability coefficient was found to be Alpha=0.900. Because $0.60 \leq \alpha < 0.80$, the scale is highly reliable. Ensuring validity and reliability shows the existence of a structural relationship between conspiracy beliefs, fear of injection, attitude towards COVID-19 vaccine, and vaccine hesitancy. The fit values examined show that the data fit the model well.

In this study, the effect of conspiracy beliefs about COVID-19 on attitudes towards COVID-19 vaccine was found to be negative and highly significant. The effect of fear of injections on the attitude towards the COVID-19 vaccine was found to be negative and highly significant. The effect of the attitude towards the COVID-19 vaccine on vaccine hesitancy was found to be negative and highly significant. The effect of conspiracy theories on COVID-19 on vaccine hesitancy over attitudes towards the COVID-19 vaccine is negative. The effect of fear of injections on vaccine hesitancy over the attitude towards the COVID-19 vaccine is negative. Thus, to explore the factors that influence COVID-19 and COVID-19 vaccine intention; It will help governments and policymakers identify and adopt appropriate interventions to address concerns and hesitations, and to increase confidence in the vaccine.

The basis of believing in conspiracy theories is that they offer a simple explanation about a stressful event and create a feeling of regaining control (Duplaga and Grysztar, 2021). It is stated that conspiracy theories offer simple and consistent explanations that meet the needs of individuals for predictability and precise results in situations where uncertainty arises. In this context, the spread of conspiracy theories in a certain crisis has the potential to cause problems in understanding the reality and danger potential of the variables that make up the crisis (Weigmann, 2018). Pummerer et al. (2021), in their research, found that believing in conspiracy theories about COVID-19 reduces trust in institutions, disrupts compliance with official regulations and social distance measures, and decreases social interaction to a certain extent. Bierwiaczonek et al. (2020) described conspiracy theories as a public health threat in the light of the findings of their research. Goertzel (1994) stated that when an individual believes in a conspiracy theory, they tend to believe in different conspiracy theories as well.

In a study of a representative group from the United States, 29% of respondents said the effects of COVID-19 were exaggerated to wear out President Trump; it was stated that 31% believed that the virus was produced and spread to serve a purpose (Uscinski et al., 2020). In a similar study conducted by Akyüz (2021), it was emphasized that there was a high level of

participation in the claim that COVID-19 was produced in the laboratory. Freeman et al. (2020) underline that conspiracy theories create distrust and reduce the vaccination process by damaging social cohesion. One of the main reasons for hesitation about vaccination is the risk/benefit dilemma. The success of immunization studies depends on the trust in the applied vaccination programs (Turkish Medical Association, 2020). Despite all the known benefits of vaccines, people may exhibit negative attitudes and behavior towards vaccination due to reasons such as doubting the safety and efficacy of vaccines, and distrust of governments and healthcare workers (Salmon et al., 2005).

Lack of information about vaccines, lack of trust in vaccines, difficulty in accessing vaccines, fear of the side effects of vaccines, anti-vaccine news in the media, and not having enough information about vaccine-preventable diseases feed the "vaccine hesitation" in society. Scientific studies; It shows that good communication and trust by healthcare professionals with the individuals to be vaccinated and/or their parents is one of the most effective ways to overcome hesitations about vaccination (Republic of Turkey Ministry of Health 2nd National Vaccine Workshop, 2016; Larson et al., 2011).

4. CONCLUSION AND RECOMMENDATION

The risk of hesitation in vaccination was found to be higher in situations where vaccinations are mandatory and/or where there is high social pressure. Conversely, where individuals and communities demand, support and/or advocate for vaccination and vaccination services, the risk of developing vaccine hesitancy is much lower. Vaccination hesitancy is a complex concept. It is considered to be situation-specific and varies with time, place, and vaccines. A person who is hesitant about vaccination may delay vaccinations, may be reluctant to vaccinate, but still accept or reject one, some, or all of the vaccinations. Many of the existing studies are based on the assumption that vaccine hesitancy arises due to "lack of knowledge" or knowledge gap. However, this finding alone is not sufficient when approaching vaccine hesitancy. Many different levels of intervention programs can be designed to regress vaccine hesitancy or vaccine rejection.

It has also been shown that hesitant individuals make more positive decisions about getting vaccinated when healthcare providers, especially physicians, communicate effectively with strong statements about the need for vaccines, the value of vaccine, and vaccine safety. The best way to achieve this is for healthcare providers to feel confident about the safety, effectiveness and importance of vaccination. However, recent studies have shown that some health care providers

also have some hesitations about vaccination in their professional and personal lives. Therefore, one of the most important steps to be taken is the development of effective strategies to overcome the vaccine hesitancy seen among healthcare providers.

Acknowledgement: The authors would like to extend their sincere thanks to anyone who contributed to this study.

Conflict of Interest: The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: This research was not supported by any institution.

References

Ahmed, W.; Vidal-Alaball, J.; Downing, J.; Lopez Segui, F. COVID-19 and the 5G Conspiracy Theory: Social Network Analysis of Twitter Data. J. Med. Internet Res. 2020, 22, e19458.

Altmann DM, Douek DC, Boyton RJ. What policy makers need to know about COVID-19 protective immunity. Lancet 2020;395:1527–9.

Bertin, P.; Nera, K.; Delouvee, S. Conspiracy Beliefs, Rejection of Vaccination, and Support for hydroxychloroquine: A Conceptual Replication-Extension in the COVID-19 Pandemic Context. Front. Psychol. 2020, 11, 565128.

Bierwiaczonek, K., Kunst, J. R., & Pich, O. (2020). Belief in COVID-19 conspiracy theories reduces social distancing over time. Applied Psychology: Health and Well-Being, 12(4), 1270-1285.

Coustasse A, Kimble C, Maxik K. COVID-19 and Vaccine Hesitancy: A Challenge the United States Must Overcome. J Ambul Care Manage. 2021; 44(1). https://doi.org/10.1097/JAC.0000000000000360 PMID: 33165121.

Coustasse A, Kimble C, Maxik K. COVID-19 and Vaccine Hesitancy: A Challenge the United States Must Overcome. J Ambul Care Manage. 2021; 44(1). https://doi.org/10.1097/JAC.0000000000000360 PMID: 33165121.

De Figueiredo, A.; Simas, C.; Karafillakis, E.; Paterson, P.; Larson, H.J. Mapping global trends in vaccine confidence and investigating barriers to vaccine uptake: A large-scale retrospective temporal modelling study. Lancet 2020, 396, 898–908.

Duplaga, M. ve Grysztar, M. (2021). The Association between Future Anxiety, Health Literacy and the Perception of the COVID-19 Pandemic: A Cross-Sectional Study. Healthcare, 9(1), 43.

Ehreth J. The value of vaccination: a global perspective. Vaccine. 2003; 21(27):4105–17. https://doi. org/10.1016/s0264-410x(03)00377-3 PMID: 14505886.

Fisher KA, Bloomstone SJ, Walder J, Crawford S, Fouayzi H, Mazor KM. Attitudes Toward a Potential SARS-CoV-2 Vaccine: A Survey of U.S. Adults. Ann Intern Med. 2020. https://doi.org/10.7326/M20-3569 PMID: 32886525; PubMed Central PMCID: PMC7505019.

Freeman, D., Lambe, S., Yu, L-M., Freeman, J., Chadwick, A., Vaccari, C., Waite, F., Rosebrock, L. et al (2021). Injection fears and COVID-19 vaccine hesitancy. Psychological Medicine 1–11. https://doi.org/10.1017/S0033291721002609.

Freeman, D., Loe, B. S., Chadwick, A., Vaccari, C., Waite, F., Rosebrock, L., ... & Lambe, S. (2020). COVID-19 vaccine hesitancy in the UK: the Oxford coronavirus explanations, attitudes, and narratives survey (Oceans) II. Psychological medicine, 1-15.

Freeman, D., Loe, B.S., Chadwick, A., Vaccari, C., Waite, F., Rosebrock, L., Jenner, L. et al (2021). COVID-19 vaccine hesitancy in the UK: the Oxford coronavirus explanations, attitudes, and narratives survey (Oceans) II. Psychological Medicine 1–15. https://doi.org/10.1017/S0033291720005188.

French J, Deshpande S, Evans W, Obregon R. Key Guidelines in Developing a Pre-Emptive COVID-19 Vaccination Uptake Promotion Strategy. Int J Environ Res Public Health. 2020; 17(16). Epub 2020/08/23. https://doi.org/10.3390/ijerph17165893 PMID: 32823775; PubMed Central PMCID: PMC7459701.

Hajj Hussein I, Chams N, Chams S, El Sayegh S, Badran R, Raad M, et al. Vaccines Through Centuries: Major Cornerstones of Global Health. Front Public Health. 2015; 3:269. https://doi.org/10.3389/ fpubh.2015.00269 PMID: 26636066; PubMed Central PMCID: PMC4659912.

Jolley, D.; Douglas, K.M. The effects of anti-vaccine conspiracy theories on vaccination intentions. PLoS ONE 2014, 9, e89177.

Kestenbaum, L.A. and Feemster, K.A. (2015). Identifying and addressing vaccine hesitancy. Pediatr Ann, 44(4):e71-5. doi: 10.3928/00904481-20150410-07.

Larson, H.J., Cooper, L.Z., Eskola, J., Katz, S.L., Ratzan, S. (2011).Addressing the vaccine confidence gap. Lancet, 6(378):526-35.

Larsona HJ., Jarrett C., Schulz WS, Chaudhuri M., Zhouc Y., Dube E., Schuster M., MacDonaldf NE., Wilsona R., the SAGE Working Group on Vaccine Hesitancy. Measuring vaccine hesitancy: The development of a survey tool. Vaccine 33(2015)4165–4175

MacDonald NE. Vaccine hesitancy: Definition, scope and determinants. Vaccine. 2015; 33(34):4161–4. https://doi.org/10.1016/j.vaccine.2015.04.036 PMID: 25896383.

MacDonald, N.E.; SAGEWorking Group on Vaccine Hesitancy. Vaccine hesitancy: Definition, scope and determinants. Vaccine 2015, 33, 4161–4164.

Neergaard L, Fingerhut H. AP-NORC poll: Half of Americans would get a COVID-19 vaccine: Associated Press; May 28, 2020 [cited 2020 December 14]. Available from: https://apnews.com/article/dacdc8bc428dd4df6511bfa259cfec44.

Neumann-Bo¨hme S, Varghese NE, Sabat I, Barros PP, Brouwer W, van Exel J, et al. Once we have it, will we use it? A European survey on willingness to be vaccinated against COVID-19. The European Journal of Health Economics. 2020; 21(7):977–82. https://doi.org/10.1007/s10198-020-01208-6 PMID: 32591957.

Omer SB, Yildirim I, Forman HP. Herd Immunity and Implications for SARS-CoV-2 Control. JAMA. 2020; 324(20):2095–6. https://doi.org/10.1001/jama.2020.20892 PMID: 33074293.

Phadke, V.K.; Bednarczyk, R.A.; Salmon, D.A.; Omer, S.B. Association Between Vaccine Refusal and Vaccine-Preventable Diseases in the United States: A Review of Measles and Pertussis. JAMA 2016, 315, 1149–1158.

Pummerer, L., Böhm, R., Lilleholt, L., Winter, K., Zettler, I., & Sassenberg, K. (2020). Conspiracy theories and their societal effects during the COVID-19 pandemic. Social Psychological and Personality Science, 19485506211000217.

Republic of Turkey Ministry of Health 2nd National Vaccine Workshop [Internet]. Çalıştay Raporu. 2016 24-26 March [cited 2021 March 03]. Available from: http://www.enfeksiyon.org.tr/2.calistayrapor.pdf.

Romer, D. & Jamieson, K.H. (2020). Conspiracy theories as barriers to controlling the spread of COVID-19 in the U.S., Social Science & Medicine, 263:113356. doi: 10.1016/j.socscimed.2020.113356.

Salmon, D.A., Moulton, L.H., Omer, S.B., DeHart, M.P., Stokley, S., Halsey, N.A. (2005). Factors associated with refusal of childhood vaccines among parents of school-aged children: a case-control study. Archives of pediatrics & adolescent medicine, 159:470-76.

Shahsavari, S.; Holur, P.; Wang, T.; Tangherlini, T.R.; Roychowdhury, V. Conspiracy in the time of corona: Automatic detection of emerging COVID-19 conspiracy theories in social media and the news. J. Comput Soc. Sci 2020, 3, 1–39.

Shapiro, G.K., Tatar, O., Dube, E., Amsel, R., Knauper, B., Naz, A., … Rosberger, Z. (2018). The vaccine hesitancy scale: Psychometric properties and validation. Vaccine, 36, 660–667.

Shen, S.C.; Dubey, V. Addressing vaccine hesitancy: Clinical guidance for primary care physicians working with parents. Can. Fam. Physician. 2019, 65, 175–181.

Turkish Medical Association [Internet]. COVID-19 Aşılarına Dair TTB Tutum Belgesi. 2020 February [cited 2021 March 03]. Available from: https://www.ttb.org.tr/haber_goster.php?Guid=16228f12-44ef-11eb-b786-a19f39419a42.

Uscinski, J. E., Enders, A. M., Klofstad, C., Seelig, M., Funchion, J., Everett, C., ... & Murthi, M. (2020). Why do people believe COVID-19 conspiracy theories?. Harvard Kennedy School Misinformation Review, 1(3).

Weigmann, K. (2018). The genesis of a conspiracy theory: Why do people believe in scientific conspiracy theories and how do they spread?. EMBO reports, 19(4), e45935.

World Health Organization (WHO). Ten Threats to Global Health in 2019. 2019. Available online: https://www.who.int/newsroom/spotlight/ten-threats-to-global-health-in-2019 (accessed on 10 Janoary 2022).

Zimmer C, Corum J, Wee S-L. Coronavirus vaccine tracker US: The New York Times; 2020 [cited 2020 December 13]. Available from: https://www.nytimes.com/interactive/2020/science/coronavirusvaccine- tracker.html.

https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1197407

Int Journal Of Health Manag. And Tourism 2022, 7(3),377-388

JHMT Editorial

International Journal Of Health Management And Tourism

ECONOMIC BURDEN OF DISABILITY ADJUSTED LIFE YEARS (DALYs) OF CANCER IN TURKEY

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Received:31.10.2022
Accepted: 14.11.2022
Research Article

Abstract

Aim: Cancer is one of the leading causes of premature death in the world. However, the economic burden of cancer at the country level is unknown. This study aims to estimate the economic loss of disability-adjusted life years (DALYs) lost due to cancer between 1990 and 2019 in Turkey.

Methods: The economic value of DALYs lost to cancer has been estimated using the human capital approach. This study used disability-adjusted life years and gross domestic product (GDP) per capita to estimate economic loss due to DALYs in Turkey.

Results: Total economic loss due to cancer due to DALYs in 1990 was estimated as $ 3,366,235,623 (CI: $3,366,235,623- $ 5,822,580,496). In 2019, the total economic loss due to DALYs-related cancer was estimated to be $21,219,951,335 (95% CI: $16,172,564,722- $26,781,505,239). While the economic value

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of DALYs lost due to cancer was 3.0 (CI: 2.23-3.86) % of GDP in 1990 in Turkey, it was 2.79 (95% CI: 2.13-3.52) % of GDP in 2019.

Conclusion: According to the findings obtained from the research findings, an economic value of roughly 2.8 % of the GDP in Turkey shows that due to cancers. The first cancer, which constitutes the highest economic value of DALYs are lung cancer (28%) with 5.9 billion $. This finding necessitates the meticulous implementation of Turkey's national cancer policy for cancer prevention in Turkey.

Keywords: Cancer, indirect costs, DALYs, human capital

INTRODUCTION

In the 21st century, cancer is a disease that threatens the health of societies, the leading cause of premature death, and the single most important obstacle to increasing life expectancy in Turkey, as it is in every country in the world (Bray et al., 2018; Yılmaz et al., 2011; Demirer, 2014). Globally, it was estimated that 19,3 million new cancer cases and 10 million people died from cancer in 2020 (Sung et al., 2021). There are 62 thousand of new cancer cases in Turkey and 140 thousand cancer-related deaths in 2019 (Demirer, 2014). Given its high incidence, long-term health effects, and rising treatment costs, cancer poses a significant disease and societal burden on patients, families, reimbursement agencies, and the health system. Long-term disability and premature death from cancer have a significant economic impact. The value of lost life years represents the largest societal cost (Bhanvadia et al., 2021).

The economic burden of cancer is very high in all countries, causing loss of productivity due to morbidity and premature death due to cancer, as well as health expenditures. As the costs of cancer treatment increase, cancer prevention and early detection screening programs become cost-effective and cost-saving (Walker, 1997). Factors such as aging, obesity, alcohol consumption, poor diet and, lack of exercise contribute to cancer types, Surgery is responsible for 65% of cancer treatment worldwide (McCormick, 2018).

A significant portion of cancer patients cannot access adequate care, mainly due to weak health systems, inadequate national services, inequalities in access to cancer care, and high financial costs, leading to early cancer deaths. Cancer is therefore a costly disease for society with potentially large impacts on productivity and the economy (Hanly, Soerjomataram, & Sharp,

2015). Cancer also has an economic impact on society. An important element of this economic impact is the cost of lost productivity due to premature death from cancer (Hanly & Sharp, 2014).

Everyone around the world deserves to live a long life in full health. To achieve this goal, health policymakers need a comprehensive picture of what disease cripples and kills people by time, age and gender, Information about fatal and non-fatal cancer-related outcomes is needed to set priorities in cancer control. DALYs are a key measure for such purposes (Murray & Lopez, 1996).

The expected increase in cancer incidence and prevalence requires well-designed and efficient cancer control programs as implemented in best practice country examples. In this context, existing programs should be developed and implemented with well designed planning and budgeting strategies to increase the average survival and quality of life of cancer patients. In addition, reducing the financial burden of cancer treatment costs with the increase in cancer cases and prevalence reveals and emphasizes the need for an effective long-term cancer control strategy in Turkey (Yilmaz et al., 2011). The aim of this study is to estimate the economic loss of disability-adjusted life years (DALYs) lost due to cancer between 1990, 2019 in Turkey.

1. RESEARCH METHODOLOGY

The economic value of DALYs lost to cancer has been estimated using the human capital approach. This study used disability-adjusted life years and gross domestic product (GDP) per capita to estimate economic loss due to DALYs in Turkey. Individuals are productive members of the economy. The annual economic contribution of an individual is GDP per capita. Years lost due to disability or death are considered non-productive and not contributing to GDP (Dalal & Svanström, 2015). DALY is one of the components commonly used in estimating the economic burden of disease (Yiğit & Yiğit, 2019).

DALY can also be evaluated with the one-year value of GDP per capita to arrive at an estimate of the DALY's economic value (Brown, 2008; WHO, 2002). Since the economic value of DALYs measured here is affected by the size of GDP per capita, expressing these values as a percentage of each country's GDP will provide a more meaningful assessment for cross-country comparison The economic value of DALYs as a percentage of the country's GDP actually reveals

the extent of the economic loss associated with each cancer in that country (John & Ross, 2010). Premature death and non-fatal disability from any disease or injury reduces the stock of health and therefore human capital. For this reason, many scientists have pioneered the application of the human capital approach (HCA) to value human life (Muthuri & Kirigia, 2020).

Data on GDP, GDP per capita (GDPPC) and current healthcare expenditure per capita (CHEPC) were obtained from the WHO (2022), OECD (2022), Turkish Statistics Institute (TUİK, 2022) and the World Bank database (WB, 2022). Data on DALYs were obtained from the Global Burden of Disease (GBD) estimates for 1990, 2019 (IHME, 2022). The Global Burden of Disease Study estimates the burden of diseases globally over the past 30 years. The GBD Study uses extensive data and methods to summarize and compare disease burden by age, sex, country, cause and year. The methods of the GBD Study have been reported in detail elsewhere. Those who want to read in detail can refer to these resources (Hay et al., 2017; Naghavi et al., 2017; Vos et al., 2017). Brief information about DALYs is given.

DALYs measure health loss from both fatal and non-fatal burdens. DALYs are the sum of life years lost due to premature death (YLLs) and life years lost due to disability (YLDs). One DALY represents 1 year of healthy life lost. Examining the levels and trends of DALYs facilitates rapid comparison between different diseases and injuries (Hay et al., 2017; Vos et al., 2017).

In this research, the human capital approach was applied to convert the DALYs lost due to cancer in Turkey in 1990 and 2019 into their economic equivalents. The total monetary value of DALYs (TMVD) lost in Turkey from 30 cancer disease is the sum of the monetary value of DALYs lost from each i^{th} cancer disease (MVD_i),

$$TMVD = \sum_{i=1}^{t=30}(MVD_1 + MVD_2 + \cdots \ldots \ldots \ldots + MVD_t) \quad (1)$$

$$MVD_1 = \{DALY_1 \text{ x } (GDPPC\text{-}CHEPC)\} \quad (2)$$

$$MVD_2 = \{DALY_2 \text{ x } (GDPPC\text{-}CHEPC)\} \quad (3)$$

$$MVD_k = \{DALY_t \text{ x } (GDPPC\text{-}CHEPC)\} \quad (4)$$

As the DALY data in this study were obtained from the global burden of disease project, the validity of the findings is subject to the validity of the estimates of the DALYs. GBD is the

only organization that provides an evidence-based estimation of DALYs from all countries. Therefore, it is assumed that the DALYs data are correct.

This article uses publicly available data. No personal data was used in the research. Therefore, this study does not require ethical permission.

2.FINDINGS

The estimated economic value of DALYs by cancer types and the economic share of DALYs in GDP (%) in Turkey for 1990 and 2019 are presented in Table 1 and Table 2. Total economic loss due to cancer due to DALYs in 1990 was estimated as $ 3,366,235,623 (95% CI: $3,366,235,623- $ 5,822,580,496). In 2019, the total economic loss due to DALYs-related cancer was estimated to be $21,219,951,335 (95% CI: $ 16,172,564,722- $26,781,505,239).

Tables 1 and 2 also show economic losses from cancers as a proportion of GDP. While the economic value of DALYs lost due to cancer was 3.0 (95% CI: 2.23-3.86) % of GDP in 1990 in Turkey, it was 2.79 (95% CI: 2.13-3.52) % of GDP in 2019.

Table 1 presents the economic values of DALYs for 30 different cancer types in 1990. The top 5 cancers that accounted for the highest economic value of DALYs in 1990; tracheal, bronchus, lung cancer (22.9%), stomach cancer (12.25%), leukemia (12.25%), colon and rectum cancer (7.29%), brain and central nervous (6.24%) were detected.

Table 1. The estimated economic value of DALYs by cancer type and economic share of DALYs in GDP (%) for 1990

Cancer Type	Economic Value of DALYs (US$)			Economic Value of DALYs as %GDP			Rank Economic Value of DALYs	
	Value	Lower	Upper	Value	Lower	Upper	%	Rank
Bladder cancer	81,746,397	64,647,747	100,818,883	0.05	0.04	0.07	1.81	12
Brain and central nervous system cancer	282,055,061	127,699,515	430,692,561	0.19	0.08	0.29	6.24	5
Breast cancer	222,322,086	176,170,792	283,378,879	0.15	0.12	0.19	4.92	7
Cervical cancer	70,896,906	44,341,284	89,744,792	0.05	0.03	0.06	1.57	15
Colon and rectum cancer	329,754,772	264,612,906	409,318,588	0.22	0.18	0.27	7.29	4
Esophageal cancer	60,272,015	42,782,297	78,007,471	0.04	0.03	0.05	1.33	16
Gallbladder and biliary tract cancer	53,806,183	40,446,459	67,036,432	0.04	0.03	0.04	1.19	18

Hodgkin lymphoma	35,806,492	28,333,924	47,158,029	0.02	0.02	0.03	0.79	21
Kidney cancer	58,010,163	45,075,857	76,437,915	0.04	0.03	0.05	1.28	17
Larynx cancer	79,582,312	56,585,936	98,985,092	0.05	0.04	0.07	1.76	13
Leukemia	553,889,511	388,370,033	756,441,530	0.37	0.26	0.50	12.25	3
Lip and oral cavity cancer	26,967,829	21,429,463	33,357,033	0.02	0.01	0.02	0.60	25
Liver cancer	101,423,981	80,929,911	123,931,523	0.07	0.05	0.08	2.24	10
Malignant skin melanoma	24,552,721	12,799,546	39,719,813	0.02	0.01	0.03	0.54	26
Mesothelioma	29,163,622	20,813,795	45,691,525	0.02	0.01	0.03	0.64	23
Multiple myeloma	42,380,660	24,571,217	64,769,295	0.03	0.02	0.04	0.94	19
Nasopharynx cancer	35,682,301	28,503,035	43,136,372	0.02	0.02	0.03	0.79	22
Non-Hodgkin lymphoma	162,346,014	119,376,111	205,482,386	0.11	0.08	0.14	3.59	8
Non-melanoma skin cancer	17,183,205	14,440,445	20,602,407	0.01	0.01	0.01	0.38	29
Other malignant neoplasms	243,164,947	203,994,743	291,543,742	0.16	0.14	0.19	5.38	6
Other neoplasms	22,121,758	17,114,504	34,295,067	0.01	0.01	0.02	0.49	27
Other pharynx cancer	9,504,535	7,277,033	12,051,761	0.01	0.00	0.01	0.21	30
Ovarian cancer	74,202,487	41,820,481	134,434,866	0.05	0.03	0.09	1.64	14
Pancreatic cancer	128,198,919	102,673,813	160,934,999	0.09	0.07	0.11	2.83	9
Prostate cancer	100,784,533	71,290,616	127,268,812	0.07	0.05	0.08	2.23	11
Stomach cancer	554,206,593	466,977,318	634,536,690	0.37	0.31	0.42	12.25	2
Testicular cancer	27,583,497	17,354,958	45,165,697	0.02	0.01	0.03	0.61	24
Thyroid cancer	19,709,292	14,768,097	24,262,062	0.01	0.01	0.02	0.44	28
Tracheal, bronchus, and lung cancer	1,037,722,382	797,590,854	1,293,079,134	0.69	0.53	0.86	22.94	1
Uterine cancer	37,812,036	23,442,934	50,302,426	0.03	0.02	0.03	0.84	20
Total	**4,522,855,851**	**3,366,235,623**	**5,822,580,496**	**3.00**	**2.23**	**3.86**	**100.00**	

The first five cancers that constitute the highest economic value of DALYs in 2019 (Table 2). It was determined as tracheal, bronchus, lung cancer (27.9%), colon and rectum cancer (9.7%), stomach cancer (8.5%), breast cancer (6.7%), pancreatic cancer (6.2%). As can be seen in Tables 1 and 2, we can see that there was a change in cancer types that constitute the highest economic values of DALYs between 1990 and 2019. Breast cancer, which was 7th in 1990, rose to 4th in 2019. Likewise, pancreatic cancer, which was 9th in 1990, rose to 5th in 2019.

Table 2. Estimated economic value of DALYs by cancer types and economic share of DALYs in GDP (%) for 2019

Cancer Types	Economic Value of DALYs (US$)			Economic Value of DALYs as %GDP			Rank Economic Value of DALYs	
	Value	Lower	Upper	Value	Lower	Upper	%	Rank
Bladder cancer	518,960,835	635,829,343	411,321,093	0.07	0.05	0.08	2,45	11
Brain and central nervous system cancer	1,058,154,884	1,462,986,378	505,535,727	0.14	0.07	0.19	4,99	7
Breast cancer	1,428,587,526	1,798,582,219	1,123,026,979	0.19	0.15	0.24	6,73	4
Cervical cancer	232,550,575	294,715,353	161,475,539	0.03	0.02	0.04	1,10	18

Colon and rectum cancer	2,062,529,710	2,534,399,153	1,640,060,841	0.27	0.22	0.33	9,72	2
Esophageal cancer	267,180,346	334,974,751	203,016,931	0.04	0.03	0.04	1,26	16
Gallbladder and biliary tract cancer	209,514,492	316,501,293	160,074,104	0.03	0.02	0.04	0,99	19
Hodgkin lymphoma	78,743,114	109,343,760	60,572,238	0.01	0.01	0.01	0,37	29
Kidney cancer	368,314,564	464,018,223	290,200,504	0.05	0.04	0.06	1,74	14
Larynx cancer	282,962,412	357,588,811	218,026,615	0.04	0.03	0.05	1,33	15
Leukemia	1,140,815,645	1,401,633,795	917,684,940	0.15	0.12	0.18	5,38	6
Lip and oral cavity cancer	120,571,163	151,139,958	94,779,986	0.02	0.01	0.02	0,57	23
Liver cancer	469,170,089	583,108,325	369,915,067	0.06	0.05	0.08	2,21	12
Malignant skin melanoma	119,400,646	161,841,823	68,017,360	0.02	0.01	0.02	0,56	24
Mesothelioma	140,891,966	180,482,497	106,094,979	0.02	0.01	0.02	0,66	21
Multiple myeloma	261,749,786	349,379,270	164,819,872	0.03	0.02	0.05	1,23	17
Nasopharynx cancer	107,496,414	134,044,047	84,492,181	0.01	0.01	0.02	0,51	25
Non-Hodgkin lymphoma	655,537,019	800,052,013	528,062,198	0.09	0.07	0.11	3,09	10
Non-melanoma skin cancer	86,395,266	107,384,936	69,227,690	0.01	0.01	0.01	0,41	28
Other malignant neoplasms	824,935,442	1,003,618,370	671,096,130	0.11	0.09	0.13	3,89	8
Other neoplasms	139,331,278	221,777,046	100,441,464	0.02	0.01	0.03	0,66	22
Other pharynx cancer	40,307,174	51,853,085	31,396,916	0.01	0.00	0.01	0,19	30
Ovarian cancer	450,194,981	594,176,474	278,965,138	0.06	0.04	0.08	2,12	13
Pancreatic cancer	1,317,985,660	1,640,005,102	1,050,184,224	0.17	0.14	0.22	6,21	5
Prostate cancer	712,406,604	927,502,946	508,649,142	0.09	0.07	0.12	3,36	9
Stomach cancer	1,809,706,107	2,239,914,718	1,433,787,167	0.24	0.19	0.29	8,53	3
Testicular cancer	95,417,002	131,249,140	69,100,287	0.01	0.01	0.02	0,45	27
Thyroid cancer	96,117,719	127,833,143	73,830,130	0.01	0.01	0.02	0,45	26
Tracheal, bronchus, and lung cancer	5,921,356,345	7,398,930,385	4,661,426,711	0.78	0.61	0.97	27,90	1
Uterine cancer	202,666,572	266,630,920	117,274,606	0.03	0.02	0.04	0,96	20
Total	21,219,951,335	26,781,505,239	16,172,564,722	2.79	2.13	3.52	100.00	

The economic value of disability-adjusted life years due to cancer by age and gender (1990, 2019) is given in Table 3. Accordingly, it was determined that while the economic loss due to cancer was 62% in men in 1990, it was 38% in women, In 2019, this rate was found to be 63% for men and 37% for women. It was determined that approximately 50% of the economic loss due to cancer in 1990 and 2019 was in the 50-69 age group.

Table 3. Estimated economic value of DALYs due to cancer by age and gender (1990, 2019)

Age Group	1990			
	Female	**Male**	**Both**	**%**
0-14	260.725.319	286.946.639	547.671.957	12,1
15-49	564.538.887	710.465.309	1.275.004.196	28,2
50-69	668.405.931	1.394.252.698	2.062.658.629	45,6
70+	224.668.455	412.252.255	636.920.711	14,1
All ages	1.718.338.592	2.803.916.901	4.522.255.492	100
%	38,0	62,0	100	
Age Group	2019			
	Female	**Male**	**Both**	**%**
0-14	248.004.948	314.360.619	562.365.567	2,7
15-49	1.976.648.984	2.409.608.241	4.386.257.225	20,7
50-69	3.441.054.291	7.288.914.221	10.729.968.511	50,6
70+	2.145.605.876	3.396.559.526	5.542.165.402	26,1
All ages	7.811.314.099	13.409.442.607	21.220.756.706	100
%	36,8	63,2	100	

4. DISCUSSION

Cancer causes many important health problems in terms of both the disease burden (morbidity and mortality) and the economic burden resulting from the disease burden, For this reason, the economic impact of a disease is considered as an important health policy problem in developed countries, In this study, the economic burden of life years adjusted for disability due to cancer was estimated in Turkey.

In Turkey, the economic burden of 30 different types of cancer due to premature death, disability and disease was estimated to be 4,522,855,851-$ in 1990. This amount constitutes 3.0 % of the gross domestic product. In 2019, this economic burden constituted 21,219,951,335-$ and 2.79 % of the gross domestic product. There are many studies in the literature on the economic burden of cancer lost to mortality and morbidity. These studies are briefly summarized below.

In a study by John and Ross, they estimated the economic value of disability-adjusted life years lost due to cancer to measure the indirect economic burden of cancer in the world. Accordingly, they found that 83 million DALYs with an economic value of 895 billion US$, roughly 1.5% of the world gross domestic product, were lost due to cancers in 2008. The top three types of cancer that account for the highest economic value of DALYs are lung cancer (19.9%),

US$ 178 billion, cancer of the colon/rectum (11.0%) US$ 99 billion and breast cancer (9.8%) 88 billion. It was determined in US dollars. The economic value of DALYs lost due to cancer is 2.22% of gross domestic product in low-income countries and 1.69% in high-income countries. For nearly half of the world's countries, the economic value of cancer-related DALYs was found to be more than one percent of annual gross domestic product (John & Ross, 2010). World Health Organization determined that the total annual economic impact of cancer globally is $1.16 trillion, This result represents approximately 1.5% of the world's gross domestic product (McCormick, 2018).

The economic burden of cancer in the USA has been determined to be approximately 1.8% of the gross domestic product (Walker, 1997), A study conducted in Chile found that it spends US$ 2,100 million (1% GDP) on cancer care and treatment. It has also been estimated that the national income lost due to DALYs cancer in Chile is 3.5 billion US$. This result shows that cancer has a major economic impact in Chile (Jimenez de la Jara et al., 2015).

Another study aimed to determine the average costs of cancer-related disability-adjusted life years and to highlight possible differences in economic estimates obtained by various approaches. According to this study, the total and indirect pooled costs per DALY were 9,150 USD (95% CI: 5,560–15,050) and 3,890 USD (95% CI: 2,570–5,880), respectively. In addition, the cancer-related cost per DALY was found to be an average of 32% (95% CI: 24-42%) of the gross domestic product per capita of the respective countries. However, it is stated that this calculation can be strongly affected by fluctuations depending on cancer type and other parameters such as country and health care costs (Garlasco et al., 2022).

In Mexico, the economic costs of breast cancer (morbidity, premature death) due to inadequate breastfeeding in women have been identified. As a result of the research, it was determined that the economic cost of breast cancer due to insufficient breastfeeding in women is 245 million USD. In addition, medical costs constitute 80% of the economic burden, and income losses and opportunity costs for caregivers were found to be 15% and 5%, respectively (Unar-Munguía et al., 2017).

5. CONCLUSIONS AND RECOMMENDATIONS

According to the findings obtained from the research findings, an economic value of roughly 2.79 % of the GDP in Turkey shows that due to cancers. This includes the indirect costs of cancer and does not include the direct costs. The first cancer, which constitutes the highest economic value of DALYs are lung cancer (28%) with 5.9 billion $. Colon/rectum cancer with 2.1 billion $ (9.7%) and stomach cancer with 1.8 billion $ (8.5%). This finding necessitates meticulous implementation of the Turkey's national cancer policy for cancer prevention. In addition, the creation and strengthening of cancer registries and the training of health manpower (oncology specialists and other health professionals related to cancer) will minimize the cancer disease burden.

The years of life lost due to cancer in Turkey have led to significant economic losses. Therefore, it is necessary to strengthen the national health system and other systems that address the social determinants of health. In addition, there is an urgent need for economic evaluation studies that identify, evaluate and compare the costs and outcomes associated with cancer preventive and therapeutic interventions in Turkey.

Acknowledgement

The authors declare that they did not receive any funding or support for the present study and that there are no potential conflicts of interest related with it.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

Bhanvadia, S. K., Psutka, S. P., Burg, M. L., de Wit, R., Dhillon, H. M., Gyawali, B., … Penson, D. F. (2021). Financial Toxicity Among Patients with Prostate, Bladder, and Kidney Cancer: A Systematic Review and Call to Action. European Urology Oncology, 4(3), 396–404. https://doi.org/10.1016/J.EUO.2021.02.007

Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R. L., Torre, L. A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: A Cancer Journal for Clinicians, 68(6), 394–424. https://doi.org/10.3322/CAAC.21492

Brown, D. W. (2008). Economic value of disability-adjusted life years lost to violence: Estimates for WHO Member States. Revista Panamericana de Salud Publica/Pan American Journal of Public Health, 24(3). https://doi.org/10.1590/S1020-49892008000900007

Dalal, K., & Svanström, L. (2015). Economic Burden of Disability Adjusted Life Years (DALYs) of Injuries. Health, 07(04), 487–494. https://doi.org/10.4236/health.2015.74058

Demirer, T. (2014). TÜBA National Cancer Policies Workshop Report. Turkey, Ankara.

Garlasco, J., Nurchis, M. C., Bordino, V., Sapienza, M., Altamura, G., Damiani, G., & Gianino, M. M. (2022). Cancers: What Are the Costs in Relation to Disability-Adjusted Life Years? A Systematic Review and Meta-Analysis. International Journal of Environmental Research and Public Health, 19(8), 4862. https://doi.org/10.3390/ijerph19084862

Hanly, P. A., & Sharp, L. (2014). The cost of lost productivity due to premature cancer-related mortality: an economic measure of the cancer burden. BMC Cancer, 14(1), 224. https://doi.org/10.1186/1471-2407-14-224

Hanly, P., Soerjomataram, I., & Sharp, L. (2015). Measuring the societal burden of cancer: The cost of lost productivity due to premature cancer-related mortality in Europe. International Journal of Cancer, 136(4), E136–E145. https://doi.org/10.1002/IJC.29105

Hay, S. I., Abajobir, A. A., Abate, K. H., Abbafati, C., Abbas, K. M., Abd-Allah, F., … Bryane, C. E. G. (2017). Global, regional, and national disability-adjusted life-years (DALYs) for 333 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990-2016: A systematic analysis for the Global Burden of Disease Study 2016. The Lancet, 390(10100), 1260–1344. https://doi.org/10.1016/S0140-6736(17)32130-X

IHME (2022). Institute for Health Metrics and Evaluation. Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 Results. Seattle, United States. Accessed: 15.10.2022

Jimenez de la Jara, J., Bastias, G., Ferreccio, C., Moscoso, C., Sagues, S., Cid, C., … Owen, G. I. (2015). A snapshot of cancer in Chile: analytical frameworks for developing a cancer policy. Biological Research, 48(1), 10. https://doi.org/10.1186/0717-6287-48-10

John, R. M., & Ross, H. (2010). Economic value of disability adjusted life years lost to cancers: 2008. Journal of Clinical Oncology, 28(15_suppl), 1561–1561. https://doi.org/10.1200/jco.2010.28.15_suppl.1561

McCormick, P. J. (2018). Cancer Tsunami: Emerging Trends, Economic Burden, and Perioperative Implications. Current Anesthesiology Reports, 8(4), 348–354. https://doi.org/10.1007/s40140-018-0294-1

Murray, C. J. ., & Lopez, A. D. (1996). The global burden of disease. Boston: WHO, Harvard School of Public Health, World Bank.

Muthuri, R. N. D. K., & Kirigia, J. M. (2020). The Monetary Value of Disability-Adjusted Life Years in Kenya in 2017. SAGE Open, 10(4), 215824402097055. https://doi.org/10.1177/2158244020970556

Naghavi, M., Abajobir, A. A., Abbafati, C., Abbas, K. M., Abd-Allah, F., Abera, S. F., … Murray, C. J. L. (2017). Global, regional, and national age-sex specific mortality for 264 causes of death, 1980–2016: a systematic analysis for the Global Burden of Disease Study 2016. The Lancet, 390(10100), 1151–1210. https://doi.org/10.1016/S0140-6736(17)32152-9

OECD (2022). OECD Health Statistics 2022. https://www.oecd.org/els/health-systems/health-data.htm

Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36

Cancers in 185 Countries. CA: A Cancer Journal for Clinicians, 71(3), 209–249. https://doi.org/10.3322/CAAC.21660

TUİK (2022). https://www.tuik.gov.tr/. Accessed: 11.10. 2022

Unar-Munguía, M., Meza, R., Colchero, M. A., Torres-Mejía, G., & de Cosío, T. G. (2017). Economic and disease burden of breast cancer associated with suboptimal breastfeeding practices in Mexico. Cancer Causes & Control, 28(12), 1381–1391. https://doi.org/10.1007/s10552-017-0965-0

Vos, T., Abajobir, A. A., Abbafati, C., Abbas, K. M., Abate, K. H., Abd-Allah, F., … Murray, C. J. L. (2017). Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990-2016: A systematic analysis for the Global Burden of Disease Study 2016. The Lancet, 390(10100), 1211–1259. https://doi.org/10.1016/S0140-6736(17)32154-2

Walker, A. (1997). The economic burden of cancer. International Journal of Care Pathways, 1(2), 72–75. https://doi.org/10.1177/136395959700100207

WB (2022). World Bank Database. https://data.worldbank.org/ Accessed: 15 10.2022

WHO (2022). Global Health Expenditure Database. https://apps.who.int/nha/database Accessed: 18.09.2022.

WHO. (2002). The World Health Organization Report 2002: reducing risks, promoting healthy life. WHO Library Cataloguing-in Publication Data.

Yiğit, A., & Yiğit, V. (2019). Economic Burden of Obesity-Related Comorbidities in Turkey. Gümüşhane University Journal of Health Sciences, 8(3), 223–230.

Yilmaz, H. H., Yazihan, N., Tunca, D., Sevinç, A., Olcayto, E. Ö., Özgül, N., & Tuncer, M. (2011). Cancer Trends and Incidence and Mortality Patterns in Turkey. Japanese Journal of Clinical Oncology, 41(1), 10–16. https://doi.org/10.1093/JJCO/HYQ075