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# The effect of an information, motivation, and behavioral skills model intervention on young women's intention to get an HPV vaccine

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## ABSTRACT

This study aims to examine the effect of the information, motivation, and behavioral skills (IMB) model intervention on young women's intention to get the Human Papilloma Virus (HPV) vaccine. An intervention study that has a pre-test, post-test design was conducted with IMB and control groups. An intervention based on the IMB model, focusing on developing motivation and proper behavioral skills, was applied to the IMB group. A traditional approach was applied to the control group. In this study, the significant post-test differences within groups were information (both groups improved significantly,  $p < 0.01$ ), individual motivation (the control group decreased significantly,  $p < 0.01$ ), behavioral skills (both groups improved significantly,  $p < 0.01$ ), self-management behavior (the IMB group increased significantly,  $p < 0.01$ ), objective health outcome (the control group decreased significantly,  $p < 0.01$ ), and subjective health outcome (the IMB group increased significantly,  $p < 0.0125$ ). IMB-based interventions can help young women acquire new sexual health behaviors to prevent cervical cancer.

## ARTICLE HISTORY

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## KEYWORDS

Cervical cancer; HPV vaccine; information-motivation-behavioral skills model

## Introduction

Cervical cancer (CC) is the fourth most common cancer among women worldwide in 2020, with an estimated 604 thousand new cases and 341 thousand deaths. Globally, among women, the estimated age-standardized incidence rate is 13.3 and the mortality rate is 7.8 (WHO, 2021). In Turkey, 30.11 million women above the age of 15 are at risk of CC. CC is the 4<sup>th</sup> most common cancer among women aged 15–44 years. HPV-16/18 infection is positive in 4.7% of women in the general population and 67.6% of invasive CCs are attributed to HPV-16/18 (ICO/IARC Information Centre, 2018).

In Turkey, a population-based CC screening program began to be implemented among women aged between 30 and 65 in 2014. Two HPV vaccines in 2007 and 2008 (bivalent vaccine, types 16 and 18, and the quadrivalent vaccine, types 6, 11, 16, and 18) were licensed. However, the HPV vaccine is not included in the routine immunization program in Turkey (Republic of Turkey Ministry of Health, 2019).

Protection from CC is possible. However, awareness studies and more widespread screening programs are needed (Durmaz et al., 2021). Despite the significant impact of the population-based screening program in the reduction of CC, Turkish women are still at risk. Dönmez et al. (2018) found that the level of awareness of college students about HPV, CC, and HPV vaccination is low. Only 2.8% of the students were vaccinated, 82.6% had not heard about the HPV vaccine. In Koç's (2015), only 10.0% of university students knew that HPV was a risk factor for CC, 90.9% were unaware of how to protect themselves from HPV, and 99.7% had no HPV vaccine. Additionally, a better education level in Turkey has been associated with more promiscuous sexual attitudes and religious aspects are not seen as an obstacle (Güdücü et al., 2012).

### **Conceptual framework**

The information-Motivation-Behavioral Skills (IMB) model was used as the theoretical framework of the study. The IMB model-based programs have positive effects on health behavior, increase the self-efficacy of individuals, decrease their negative attitudes, and significantly contribute to facilitating positive behaviors with them (Fisher et al., 2003). The IMB model has three components: information, motivation, and behavioral skills. Information and motivation are directed towards behavioral change, while the skill component is concerned with transforming information and motivation into actionable skills (Scott et al., 2020; Sinley et al., 2018).

There are limited studies on CC prevention and control behaviors of Turkish women. However, we could not find any study evaluating the impacts of IMB model components and IMB-based interventions on CC self-management behaviors of the Turkish population. In addition, the demands and requirements of young women will be different from other individuals in the population. Therefore, it is necessary to ensure that Turkish young women successfully manage CC self-management behaviors, understand their characteristics and needs, and learn their self-management skills appropriate to their age. This study aims to examine the effect of the information, motivation, and behavioral skills model on young women's intention to get the HPV vaccine.

## **Methods**

### **Design**

The study has a pre-test, post-test design.

### **Setting**

The study was carried out at Afyon Kocatepe University, Department of Nursing in Turkey between 1 May 2017, and 1 November 2017.

## Sample

All of the participants who were female students, older than 18 years old, enrolled in the Department of Nursing, did not receive education on CC, and agreed to participate in the study were included in the study. Nursing students who were in the 3rd or 4th year were included in the study because they can establish bonds easily with women in primary health care services now and in the future, because they will be a pioneer in developing protective behaviors for themselves, girls, and other women they come into contact with, and because they have basic knowledge about women's health. The students who did not meet the participation criteria and mentioned did not agree to participate in the study were excluded.

The sample was calculated using the software package G\*Power 3.1.9.2 program. Based on independent samples testing (t-test),  $d = 0.6$  (effect size for targeted interventions in students at risk) (Slavin & Madden, 1989),  $\alpha = 0.05$  (probability of type-I error), and  $\beta = 0.20$  (probability of type-II error), at least 55 subjects per group were needed for detection of this effect. 125 students were included in the study. A total of 14 students (11.2%) were excluded from the study for declined to participate ( $n = 3$ ) and could not be reached/absent at school ( $n = 11$ ). The 111 students were randomly and blindly assigned to groups (an IMB group of 56 and a control group of 55) at a 1:1 ratio. Students whose numbers ended with an odd number were assigned to the intervention group, while those whose numbers ended with an even number were assigned to the control group. The data obtained from 111 students were analyzed (intent-to-treat). A single-blind method was applied to prevent side grabbing in the study. In the statistical analysis made at the beginning of the study, it was determined that the students were similar in terms of variables such as average age, sex, class, having a chronic disease, and hearing pap smear test in the two groups ( $p < 0.05$ ). The CONSORT diagram of the study is given in [Figure 1](#).

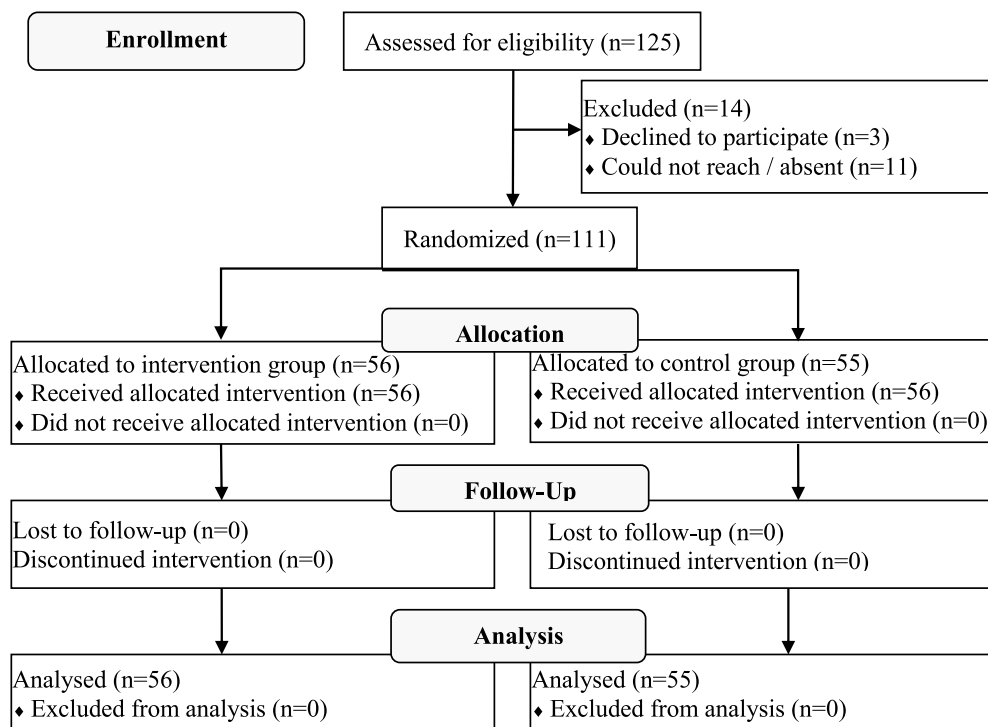
## Intervention

The intervention was completed in four sessions with each session lasting about 45 minutes. The four sessions contained interactive presentations. There were breaks of 10 to 15 minutes between two sessions. There were two groups with group sizes ranging from 10–12.

In the IMB group, presentation content in the first session aimed to increase the knowledge about CC. The second session was aimed to reduce negative attitudes and enhance motivation about CC prevention and early diagnosis. The third session was aimed at developing behavioral skills. In the last session, knowledge and skills were strengthened with termination questions.

For the control group, a training program based on the traditional knowledge interventions was applied. The program, where there was no focus on developing motivation and proper behavioral skills, provides information on CC, early detection and prevention methods of CC, sexually transmitted diseases, use of condoms, and Pap smear test. The control group's program did not focus on developing motivation and proper behavioral skills.

At the end of the sessions, both groups were given the booklet that provides information on CC, early detection of CC, condom use, application of Pap smear test, STDs, safe sexuality, and the CC detection and prevention methods. The intervention lasted for



**Figure 1.** The CONSORT diagram.

a total of 4–5 hours in each group and was completed on separate days, preventing the two groups from meeting each other. The interventions were implemented in both groups by the first author who has a doctorate in obstetrics and gynecology nursing.

### **Data collection tools**

Data were collected using a self-reported questionnaire twice: 1) the beginning of the study (pre-test), and 2) 2 to 4 weeks after the training sessions (post-test). The questionnaire includes independent variables, such as age, class, chronic disease, CC training, and dependent variables such as information, motivation, and behavioral skills as follow:

#### *Information*

The form was prepared by researchers on the based literature (National Cancer Institute, 2018). The form consists of 18 items, with each correct answer being scored 1, and each incorrect answer being scored 0. Higher scores indicate higher information. The value of Kuder-Richardson (KR) 20 which is a special case of Cronbach's alpha, computed for dichotomous scores, was 0.69 in the study. A high KR-20 coefficient indicates a homogeneous test (Özdamar, 2013).

### ***Individual motivation/attitude***

Attitude towards early diagnosis of CC was measured using ‘The Scale of Early Diagnosis of Cervical Cancer’ which was developed by Özmen and Özsoy (2009). It consists of 30 items, 11 of which are negative statements and reverse scored. Responses to the positive items on this 5-point Likert scale range between ‘‘Totally disagree = 1 to ‘Totally agree = 5’. Higher scores indicate higher individual motivation. In this study, the Cronbach’s alpha value of the scale was found at 0.76.

### ***Social motivation/social support***

The adequacy of perceived general social support was evaluated using ‘The Perceived Social Support Scale’ which was developed by Eker et al. (2001). The 12-item scale is a 7-point Likert scale, with the responses ranging between ‘Definitely no = 1’ to ‘Definitely yes = 7’. In this study, the Cronbach’s alpha value of the scale was found at 0.85.

### ***Behavioral skills/self-efficacy***

Women’s self-efficacy perception regarding the early diagnosis of CC was assessed using ‘The Self-Efficacy Scale’ which was adapted to Turkish by Beser et al. (2012). Responses to the items on this 7-item scale range between ‘Definitely no = -3’ and ‘Definitely yes = +3’. Higher scores indicate higher self-sufficiency. In this study, the Cronbach’s alpha value of the scale was found at 0.85.

### ***Self-management behavior/self-care***

Self-management behaviors were evaluated according to the ‘The Benefits of Pap Smear and Health Motivation’ factor of the ‘Scale of Health Belief Model for CC and Pap Smear Test’ developed by Guvenc et al. (2011). The factor with 8-item evaluates the individual’s early diagnosis and preventive health practices related to CC. Responses to the items range between ‘Definitely disagree = 1’ and ‘Definitely agree = 5’. Higher scores indicate a higher degree of self-care behavior to prevent cancer. In this study, the Cronbach’s alpha value of the scale was found at 0.83.

### ***HPV vaccine intention***

The concept of intent is invaluable for researchers who deal with behavior change. Because interventions designed to improve public health and educational outcomes are often based on frameworks that construe intentions (Ajzen, 1991; Bandura, 1996). IMB model antecedents (e.g. Theory of Planned Behavior [Ajzen, 1991]) that see intentions as the biggest determinant of health behavior have widely used this concept. The primary outcome in this study was the intention to get the HPV vaccination. Therefore, we tried to estimate the intention of students by asking whether they would get vaccinated or not, as the intention has been associated with behaviors (Güdücü et al., 2012). For the question of ‘Do you intend to get an HPV vaccination?’ an answer of ‘Yes’ was scored 1, and an answer of ‘No’ was scored 0.

### **Subjective Health Outcomes**

The subjective health outcomes or health perception was evaluated using ‘The Health Perception Scale’ which was adapted to Turkish by Kadioğlu and Yıldız (2012). Responses to the positive items on the 15-item 5-point Likert-type scale ranged from ‘Strongly agree = 5’ to ‘Disagree = 1’, while the negative items were reverse-scored. In this study, the Cronbach’s alpha value of the scale was found at 0.72.

### **Data analysis**

The Shapiro-Wilk test was applied to test whether the data had a normal distribution. The Cronbach’s alpha coefficients of the scales were calculated. When comparing scale scores between groups, the Student t-test was used for normally distributed data and Mann Whitney U for non-normally distributed data. In the comparisons within the group, Paired t-test was used in normally distributed and Wilcoxon signed-rank test was used in non-normally distributed. Post hoc independent and dependent sample tests were used to further explore significant group differences at each of the time points. When post hoc tests were conducted, the family-wise error rate was controlled by adjusting the significance level to  $p < 0.0125$  (To obtain the simple Bonferroni corrected  $p$ -value, the original  $\alpha$ -value is divided by the number of analyzes on the dependent variable. i.e.  $0.05/4$  comparisons). Analyses were performed using SPSS® (v24).

### **Ethical considerations**

This study was performed in line with the principles of the Declaration of Helsinki. Approves were granted by the Afyonkarahisar Clinical Research Ethics Committee (Date 30.07.2015/No. 2015/10-267) and from the institution where the research was conducted (Date 01.09.2015/No. 34 828). Informed consent was obtained from all individual participants included in the study.

### **Results**

The results of 111 students are presented in the study (Figure 1). The average age of the IMB group was  $20.86 \pm 1.02$  and the control group was  $21.11 \pm 1.36$  years. Equivalent participation was achieved in both classes. In the study, there was no significant difference between the groups in terms of age, class, presence of chronic disease, training of CC, and hearing of pap smear and HPV vaccine ( $p > 0.05$ ). Table 1 shows multiple comparisons for each IMB variable. After adjustment for multiple comparisons, none of the between-group variables are different at  $p < 0.0125$  significance level. The (adjusted) significant post-test differences within groups were information (both groups improved significantly,  $p < 0.01$ ), individual motivation (the control group decreased significantly,  $p < 0.01$ ), behavioral skills (both groups improved significantly,  $p < 0.01$ ), self-management behavior (the IMB group increased significantly,  $p < 0.01$ ), objective health outcome (the control group decreased significantly,  $p < 0.01$ ) and subjective health outcome (the IMB group increased significantly,  $p = < 0.0125$ ).

**Table 1.** Multiple comparisons of each IMB model variable.

Variables	Measurement	IMB group (N = 56)	Control group (N = 55)	Statistic	<i>p</i>
Information	Pre-test	14.43 ± 2.54	14.58 ± 2.76	-0.307 <sup>a</sup>	0.759
	Post-test	17.25 ± 1.1	16.96 ± 1.41	-0.780 <sup>a</sup>	0.435
	Statistic	-6.068 <sup>b</sup>	-5.275 <sup>b</sup>		
	<i>p</i>	0.001*	0.001*		
Individual Motivation	Pre-test	110 ± 9.93	111.04 ± 10.13	-0.544 <sup>c</sup>	0.587
	Post-test	109.02 ± 12.9	108.11 ± 9.24	0.426 <sup>c</sup>	0.671
	Statistic	0.667 <sup>d</sup>	2.742 <sup>d</sup>		
	<i>p</i>	0.508	0.008*		
Social Motivation	Pre-test	60.95 ± 13.66	67.45 ± 13.1	-2.476 <sup>a</sup>	0.013
	Post-test	60.98 ± 14.34	65.95 ± 13.5	-2.029 <sup>a</sup>	0.042
	Statistic	-0.364 <sup>b</sup>	-1.084 <sup>b</sup>		
	<i>p</i>	0.716	0.279		
Behavior skills	Pre-test	6.82 ± 7.15	7.4 ± 6.91	-0.780 <sup>a</sup>	0.436
	Post-test	8.8 ± 8.83	10.67 ± 7.21	-1.064 <sup>a</sup>	0.287
	Statistic	-2.655 <sup>b</sup>	-3.786 <sup>b</sup>		
	<i>p</i>	0.008*	0.001*		
Self-management behavior	Pre-test	33.61 ± 4.32	34.38 ± 3.53	-0.814 <sup>a</sup>	0.416
	Post-test	36.13 ± 3.65	35.04 ± 3.63	-1.580 <sup>a</sup>	0.114
	Statistic	-4.849 <sup>b</sup>	-1.579 <sup>b</sup>		
	<i>p</i>	0.001*	0.114		
Objective health outcome	Pre-test	1.25 ± 0.44	1.22 ± 0.42	-0.394 <sup>a</sup>	0.694
	Post-test	1.11 ± 0.31	1.00 ± 0.00	-2.485 <sup>a</sup>	0.013
	Statistic	2.138 <sup>b</sup>	-3.464 <sup>b</sup>		
	<i>p</i>	0.033	0.001*		
Subjective Health outcome	Pre-test	50.46 ± 4.75	50.58 ± 5.6	-0.077 <sup>a</sup>	0.939
	Post-test	52.5 ± 5.82	51.31 ± 5.25	-1.111 <sup>a</sup>	0.267
	Statistic	-2.503 <sup>b</sup>	-0.812 <sup>b</sup>		
	<i>p</i>	0.012*	0.417		

Abbreviations: IMB, Information-Motivation-Behavioral Skills.

<sup>a</sup>Mann-Whitney U test.

<sup>b</sup>Wilcoxon signed-rank test.

<sup>c</sup>Student t-test.

<sup>d</sup>Paired t-test.

\**p* < 0.0125.

## Discussions

The IMB model precursors (e.g. Planned Behavior Theory (Ajzen, 1991)) see intentions as the major determinant of health behavior. The primary outcome in this study was the intention to get the HPV vaccination. In the current study, it was determined that the objective health outcome did not change in the IMB group, however subjective health outcome was increased significantly. Perez et al. (2016) conducted an experimental study based on the IMB model to promote HPB vaccination uptake. They found that there was no group difference in vaccination at a one-month follow-up; however, the intention to vaccinate increased seven-fold in the IMB group. In a systematic analysis of IMB model-based studies (Yilmazer & Tuzer, 2017), it was reported that effective behavior was developed in participants of some studies but not in others. In the study, more effective results were obtained as the quality of interventions increased (e.g. duration of the study, the number of interventions, and frequency). For high-quality research in the future, the IMB model may provide a broad conceptual and practical approach to intervention



studies to strengthen health behaviors. Therefore, when planning health promotion programs, research designs are recommended within this framework (Bahrami & Zarani, 2015).

The secondary outcomes in this study were information, behavioral skills, self-management behaviors, and subjective health outcomes. We found that the IMB group had significant increases, especially in the self-management behaviors and subjective health outcomes, unlike the control group. There was an increase in the information and behavioral skill levels in both the IMB and control groups. The current study indicated that different interventions led to positive information change, both in the IMB and in the control groups. According to the IMB model, information interacts with motivation and facilitates positive health behaviors along with positive behavioral skills. They improve self-management behavior and health outcomes by acting together (Osborn et al., 2010). Information is considered the most important variable for behavior change in young women (Miroshlava Bartholmae, 2016). Even in cases where individuals are well-aware of how to transform information into behavior, sufficient motivation is necessary to apply what has been learned (Bahrami & Zarani, 2015). Some individual and social factors affecting the motivations can affect individuals from developing new health-related behaviors (Vural & Zencir, 2010). Indeed, women with high cancer concerns participate in more CC screening (Kelly et al., 2015).

In the current study, although the motivation level of the IMB group was expected to increase after the intervention, the motivation level of the group did not change. However, motivation decreased significantly in the control group. In the study of Perez et al. (2016), the effect of IMB-based interventions on HPV vaccination was analyzed, a decline in motivation scores was observed in both groups and the authors suggested that multiple interventions may be required to secure permanent changes in motivation. On the other hand, in the study of Ybarra et al. (2015), the effect of IMB-based interventions on HIV preventive skills analyzed, the motivation level of the IMB group did not differ over time. The reason for this result was explained as that sexual abstinence is perceived as a culturally normative scenario for young people (Katz et al., 2013; Ybarra et al., 2015). We think that these reasons are also effective on our results.

Behavioral skills include skills related to bringing about certain targeted behavior and emotional self-efficacy. Behavioral skills support the acquisition of new health behaviors and the ability to maintain that behavior (Fisher & Fisher, 1992). In the current study, after the interventions, the behavioral skills of both groups improved significantly. However, only the IMB group's self-management behaviors increased significantly. Perez et al. (2016) found different results, which were attributed to the failure of the IMB group to find the opportunities to apply the skills that they had learned.

The primary limitation of this study is the sample. Because it is a unique sample, it may not be generalizable to other populations. The second limitation is a short, four-session intervention. A longitudinal study may be better equipped to determine the behavioral effects of the intervention. However, generalizable short programs should not be neglected to develop CC preventive behaviors. Moreover, objective health outcomes were evaluated according to a willingness to receive the HPV vaccination. As these results were evaluated based on the participants' statements, it is uncertain whether any change will occur in the long run in their decision to receive HPV vaccination or to take a Pap smear test.

## Conclusion

Despite these limitations, this study is one of the first studies investigating the potential impact of IMB-based intervention in a population at high risk for CC. This study is important in terms of providing potential methods for the prevention of CC and providing the basis for future studies. These findings can be used to develop personalized interventions and to improve women's CC self-management behaviors and health outcomes. It is recommended that future studies include interventions that determine the long-term effectiveness of the model on different groups.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Author contributions

ATO, PÖ, and ÜS contributed to study conception/design. ATO and PÖ performed data collection/analysis. ATO and PÖ drafted the manuscript. ATO and PÖ performed critical revision for intellectual content.

## References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Bahrami, Z., & Zarani, F. (2015). Application of the Information-Motivation and Behavioral Skills (IMB) model in risky sexual behaviors amongst male students. *Journal of Infection and Public Health*, 8(2), 207–213. <https://doi.org/10.1016/j.jiph.2014.09.005>
- Bandura, A. (1996). Failures in self-regulation: energy depletion or selective disengagement? *Psychological Inquiry*, 7(1), 20–24. [https://doi.org/10.1207/s15327965pli0701\\_3](https://doi.org/10.1207/s15327965pli0701_3)
- Beser, A., Bahar, Z., Aydoğdu, N., Ersin, F., & Kissal, A. (2012). Validity and reliability study for the self-efficacy scale. *HealthMED*, 6(1), 195–200. <https://healthmed.ba/2012/01/01/volume-6-number-1/>
- Dönmez, S., Öztürk, R., Kısa, S., Karaoz, W. B., Zeyneloğlu, S., Karaoz Weller, B., & Zeyneloğlu, S. (2018). Knowledge and perception of female nursing students about human papillomavirus (HPV), cervical cancer, and attitudes toward HPV vaccination. *Journal of American College Health*, 67(5), 1–8. <https://doi.org/10.1080/07448481.2018.1484364>
- Durmaz, S., Özvurmaz, S., Adana, F., & Kurt, F. (2021). Cross-sectional evaluation of relations between women's attitudes towards the diagnosis of cervical cancer and regular gynecological examination. *Journal of Adnan Menderes University Health Sciences Faculty*, 5(1), 26–36. <https://doi.org/10.46237/amusbfd.727999>
- Eker, D., Arkar, H., & Yaldiz, H. (2001). Factorial structure, validity, and reliability of the revised form of the multidimensional scale of perceived social support. *Turkish Journal of Psychiatry*, 12(1), 17–25. <http://www.turkpsikiyatri.com/en/default.aspx?modul=summary&id=21>
- Fisher, J. D., & Fisher, W. A. (1992). Changing AIDS-risk behavior. *Psychological Bulletin*, 111(3), 455–474. <https://doi.org/10.1037/0033-2909.111.3.455>

- Fisher, W. A., Fisher, J. D., & Harman, J. (2003). The information-motivation-behavioral skills model: a general social psychological approach to understanding and promoting health behavior. In J. Suls & K. A. Wallston (Eds.), *social psychological foundations of health and illness* (pp. 82–106). Blackwell Publishing Ltd. <https://doi.org/10.1002/9780470753552.ch4>
- Güdücü, N., Gönenç, G., İçi, H., Yiğiter, A. B., & Dünder, İ. (2012). Awareness of human papillomavirus, cervical cancer, and HPV vaccine in healthcare workers and students of medical and nursing schools. *Journal of Clinical and Experimental Investigations*, 3(3), 318–325. <https://doi.org/10.5799/ahinjs.01.2012.03.0171>
- Güvenc, G., Akyuz, A., & Açıkel, C. H. (2011). Health belief model scale for cervical cancer and pap smear test: Psychometric testing. *Journal of Advanced Nursing*, 67(2), 428–437. <https://doi.org/10.1111/j.1365-2648.2010.05450.x>
- ICO/IARC Information Centre. (2018). Human papillomavirus and related cancers, fact sheet 2018. [https://hpcvcentre.net/statistics/reports/TUR\\_FS.pdf?t=1619346498046](https://hpcvcentre.net/statistics/reports/TUR_FS.pdf?t=1619346498046)
- Kadıoğlu, H., & Yıldız, A. (2012). Validity and reliability of the Turkish version of the perception of health scale. *Türkiye Klinikleri Journal of Medical Sciences*, 32(1), 47–53. <https://doi.org/10.5336/medsci.2010-21761>
- Katz, I. T., Ybarra, M. L., Wyatt, M. A., Kiwanuka, J. P., Bangsberg, D. R., & Ware, N. C. (2013). Socio-cultural and economic antecedents of adolescent sexual decision-making and HIV-risk in rural Uganda. *AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV*, 25(2), 258–264. <https://doi.org/10.1080/09540121.2012.701718>
- Kelly, K. M., Schoenberg, N., Wilson, T. D., Atkins, E., Dickinson, S., & Paskett, E. (2015). Cervical cancer worry and screening among Appalachian women. *Journal of Primary Prevention*, 36(2), 79–92. <https://doi.org/10.1007/s10935-014-0379-7>
- Koç, Z. (2015). University students' knowledge and attitudes regarding cervical cancer, HPV, and HPV vaccines in Turkey. *Journal of American College Health*, 63(1), 13–22. <https://doi.org/10.1080/07448481.2014.963107>
- Miroshlava Bartholmae, M. (2016). *The information-motivation-behavioral skills model: an examination of obesity prevention behavioral change in children who participated in the afterschool program virginia beach let's move*. Old Dominion University.
- National Cancer Institute. (2018). *Cervical Cancer—Patient Version*. U.S. Department of Health and Human Services. <https://www.cancer.gov/types/cervical>
- Osborn, C. Y., Rivet Amico, K., Fisher, W. A., Egede, L. E., & Fisher, J. D. (2010). An information-motivation-behavioral skills analysis of diet and exercise behavior in Puerto Ricans with diabetes. *Journal of Health Psychology*, 15(8), 1201–1213. <https://doi.org/10.1177/1359105310364173>
- Özmen, D., & Özsoy, S. (2009). Developing a valid and reliable instrument to examine attitudes toward early diagnosis of cervical cancer by using health belief model approach. *Ege University Nursing School Journal*, 25(1), 51–69. <https://dergipark.org.tr/pub/eghehemsire>
- Özdamar, K. (2013). *Paket Programları ile İstatiksel Veri Analizi (10. Baskı)*. Nisan Kitabevi.
- Perez, G., Cruess, D., & Strauss, N. (2016). A brief Information-Motivation-Behavioral skills intervention to promote HPV vaccination among college-aged women. *Psychology Research and Behavior Management*, 9(2016), 285–296. <https://doi.org/10.2147/PRBM.S112504>
- Republic of Turkey Ministry of Health. (2019). Cervical Cancer. Republic of Turkey Ministry of Health. [https://hsgm.saglik.gov.tr/tr/?option=com\\_content&view=article&id=362&catid=648](https://hsgm.saglik.gov.tr/tr/?option=com_content&view=article&id=362&catid=648)
- Scott, J., Oxlad, M., Dodd, J., Szabo, C., Deussen, A., & Turnbull, D. (2020). Creating healthy change in the preconception period for women with overweight or obesity : A qualitative study using the information – motivation – behavioural skills model. *Journal Clin. Medical*, 9(3351), 1–20. <https://doi.org/10.3390/jcm9103351>
- Sinley, R. C., Albrecht, J. A., Author, C., & State, M. (2018). Application of the IMB model to the reported intake of fruits and vegetables of native American children. *Journal of Health Disparities Research and Practice*, 11(1), 16–30. <https://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=1676&context=jhdrp>

- Slavin, R. E., & Madden, N. A. (1989). What works for students at risk: A research synthesis. *Educational Leadership*, 46(5), 4–13. <https://www.semanticscholar.org/paper/What-Works-for-Students-at-Risk%3A-A-Research-Slavin-Madden/0ef1b59b0ab4314d440e0b004dd33b7c54aa2c0a>
- Vural, B., & Zencir, G. (2010). Sexual Health Education Model: IMB model. *Gaziantep Medical Journal*, 16(3), 1–5. <https://eurjther.com/en/sexual-health-education-model-imb-model-13728>
- WHO. (2021). Cancer Today. WHO. <https://gco.iarc.fr/today/>
- Ybarra, M. L., Korchmaros, J. D., Prescott, T. L., & Birungi, R. (2015). A Randomized Controlled Trial to Increase HIV Preventive Information, Motivation, and Behavioral Skills in Ugandan Adolescents. *Annals of Behavioral Medicine*, 49(3), 473–485. <https://doi.org/10.1007/s12160-014-9673-0>
- Yilmazer, T., & Tuzer, H. (2017). Information, Motivation, Behavior Skills (IMB) model in developing behavioral change in health. *Kastamonu Health Academy*, 2(3), 199–210. <https://doi.org/10.25279/sak.320189>

## Appendix

Data Collection Form