

Exploring the Correlation between Different Types of Subjective Norms and High-Risk Behaviors: A Cross-Sectional Study on College Students in Shiraz, Iran (2021)

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Abstract

Background: Youth is a unique stage in everyone's life. During this period, individuals often engage in high-risk behaviors, including high-speed driving, smoking, sexual behaviors, alcohol consumption, physical inactivity, unhealthy eating habits, and violence. One of the factors influencing these high-risk behaviors is subjective norms. This study aimed to compare the correlation between two types of norms—descriptive norms (DN) and injunctive norms (IN)—with seven high-risk behaviors among college students.

Methods: This analytical cross-sectional study focused on the male and female students of Shiraz University of Medical Sciences. Participants were selected through multi-stage random sampling. An online researcher-made questionnaire, consisting of three parts: demographic information, questions about DN and IN, and questions about the frequency of behaviors, was sent to students. Descriptive analysis and bivariate Spearman's correlation analysis were performed using SPSS 24.

Results: 245 students (66.9% female) participated in the study. In the total population, regular exercise ($r=0.179$; $P=0.005$) and fast food ($r=0.154$; $P=0.016$) positively correlated with IN. Meanwhile, high-speed driving ($r=0.148$; $P=0.021$), drinking alcohol ($r=0.198$; $P=0.002$), and sexual relations outside of marriage ($r=0.221$; $P=0.001$) had a positive correlation with DN. No significant relationships were observed between aggression and smoking with either of the two types of subjective norms.

Conclusion: The findings suggest that the two types of subjective norms do not affect health behaviors equally. Researchers should measure both descriptive and injunctive norms when using behavior change models that include the subjective norms construct.

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Introduction

Young adulthood, which begins at age 19, is one of the most unique stages of life.¹ Health-related behaviors during this period can affect the health status of

individuals throughout their lives.² Health-risk behaviors, defined as behaviors that threaten individuals' and society's physical, mental, and social health,³ are highly prevalent in young adults. These behaviors include high-risk driving, smoking, sexual behaviors, alcohol

consumption, physical inactivity, unhealthy eating habits, and aggression.⁴⁻⁸ Young university students are not exceptions.⁹ Several factors, such as economic, social, and environmental changes, have significantly impacted high-risk behaviors in young people, especially.^{10,11}

Similar to other countries in the world, health-risk behaviors among young people in Iran are worrying. Some evidence for this is presented below. High-speed driving is one of the most common driving violations in Iran,¹² with a higher level of morbidity and mortality than other types of driving accidents.^{12, 13} A meta-analysis of the studies conducted in Iran reported that the pooled prevalence of cigarette smoking at least once in the lifetime among college students was 19%.¹⁴ It is estimated that 7.8% of young people in Iran engage in unprotected sexual behaviors, and similarly, 7.8% of young people in Iran consume alcohol.¹⁵ About 50% of people aged 18-24 have insufficient physical activity in Iran.¹⁶ Mohammadbeigi et al. (2018) reported that 34% of students at a university in Qom, Iran, have consumed at least one type of fast food weekly.¹⁷ Finally, in a national survey conducted in 2019, moderate and severe aggressive behaviors were reported by 33.0% of the population, especially in younger ages.¹⁸

Behavior change theories and models suggest several factors as predictors of health behaviors. However, some of these models have paid less attention to the social context of human behaviors.^{8,19} One such factor is the impact of social norms on behavior. The social norm approach emphasizes two types of norms: a) injunctive norms and b) descriptive norms. Injunctive norms describe how people should act, feel, and think in a given situation. In this type of subjective norm, norms refer to individuals' beliefs regarding the approval or disapproval of the behavior by important others and how they feel committed to behave based on the views of these individuals. On the other hand, descriptive norms refer to the popularity of a specific behavior in the community. In other words, injunctive norms refer to social approval of the act, while descriptive norms refer to the popularity of that act.^{20, 21}

Studies that have examined the predictors of health-related behaviors²²⁻²⁴ have explored the relationship between perceived subjective norms and intentions or behaviors. However, to our knowledge, no study has compared the impact of the two types of subjective norms—injunctive and descriptive—on different health-related behaviors. Therefore, this study aimed to investigate the association of each type of subjective norm with different health behaviors separately among Shiraz University of Medical Sciences students.

Methods

In this analytical cross-sectional study, the statistical population consisted of male and female Shiraz

University of Medical Sciences students. Based on the high-risk prevalence reported in different studies and considering $\alpha=0.05$, $d=0.05$, and $P=0.2$, the sample size was approximately 250 subjects. Students who were studying for Bachelor of Sciences, Master of Sciences, and Professional Doctorate degrees at Shiraz University of Medical Sciences and consented to participate in the study were included. Since the questionnaire was distributed and completed online, the students expressed their consent to participate in the study through an electronic form.

Participants were selected using a multi-stage random sampling method. Initially, the number of students in each of the nine faculties (Health, Nutrition & Food Sciences, Medicine, Dentistry, Pharmacy, Paramedical Sciences, Nursing & Midwifery, Management & Medical Information Sciences, and Rehabilitation Sciences) who were studying in the three degrees above was determined. Then, the desired number of samples was determined in proportion to the number of students in each faculty. In each faculty, according to the desired sample size, one or two classes were selected randomly, and all of the students in each selected class were recruited for the study. Then, the class representatives sent an online questionnaire on Porsline (an online survey platform in Iran that allows for representative surveying) to students' WhatsApp groups. In total, 300 questionnaires were delivered to students, and 245 students responded to the questionnaires completely (response rate=82%). Students who responded to the questionnaire partially were excluded from the study. The study was approved by the local Ethics Committee of Shiraz University of Medical Sciences, Shiraz, Iran (code: IR.SUMS.REC.1398.1304).

The data collection tool was a researcher-made questionnaire that consisted of three parts: first, demographic information, including gender, educational degree, and residence. No further information was requested from the students to ensure their anonymity. Second, questions about participants' perceived descriptive and injunctive subjective norms for each of the seven desired behaviors. The injunctive subjective norms for each behavior were measured with six items. Three items for normative belief (e.g., My parents /friends /teachers believe I should 1 2 3 4 5 should not smoke/eat fast food/...), and three items for motivation to comply (e.g., The opinion of my parents /friends/teachers about smoking/eating fast food/... is 5 4 3 2 1 is not important to me). The descriptive norm for each behavior was assessed with three questions (e.g., most of my friends/ people I know/ young people smoke/ eat fast food/ ..., completely agree 5 4 3 2 1 Completely disagree). Finally, the third part of the questionnaire consisted of seven questions about the frequency of performing behaviors (regular exercise,

eating fast food, high-speed driving, aggression, smoking, drinking alcohol, Sexual relations outside of marriage), with a 3-point Likert scale (rarely/sometimes/ often). The face and content validity of the questionnaire were confirmed using a panel of 10 experts and the calculation of Content Validity Ratio (CVR>0.75) and Content Validity Index (CVI>0.8). The internal reliability of the questionnaire was evaluated and confirmed by calculating Cronbach's alpha (>0.72). The external reliability of the questionnaire was confirmed by a test-retest on a pilot sample of 30 students ($r=0.75$, $P=0.003$). SPSS 24 software was used for data analysis. Descriptive analysis and bivariate correlation (Spearman's correlation coefficient) were used to evaluate the relationships between the mean scores of each type of subjective norm and their relevant behavior.

Results

A total of 245 students participated in the study, with a gender distribution of 33.1% male and 66.9% female. The frequency distribution of their degree and place of residence is presented in Table 1.

The study findings revealed that the most frequent high-risk behaviors were eating fast food and aggression (manifested as getting angry when dealing with problems). Additionally, more than 40 percent of the students were physically inactive. Table 2 presents

the frequency distributions of participants' responses to questions about the likelihood of performing different studied behaviors.

In Spearman's correlation analysis, it was revealed that, in the total population, exercising regularly ($r=0.179$; $P=0.005$) and eating fast food ($r=0.154$; $P=0.016$) had a positive correlation with injunctive subjective norms. Conversely, there were significant positive relationships between the descriptive subjective norm and high-speed driving ($r=0.148$, $P=0.021$), drinking alcohol ($r=0.198$; $P=0.002$), and sexual relations outside of marriage ($r=0.221$; $P=0.001$). However, no significant relationships were observed between other studied behaviors (aggression and smoking) and each of the two types of subjective norms in the total population. Table 3 presents the correlation coefficients between the studied behaviors and the two types of subjective norms among all participants, broken down by gender.

Discussion

Subjective norms can be powerful motivators of human behaviors.²⁵ Studies using the Theory of Planned Behavior, Theory of Reasoned Action, and Integrated Behavior Model have frequently assessed and reported subjective norms as an important predictor of health-related behaviors.²⁶⁻²⁹ However, few studies have distinguished between injunctive norms (IN) and descriptive norms (DN).³⁰⁻³³ Moreover, all of these

Table 1: Frequency distribution of participants' demographic characteristics

Variable	Male		Female		
	N	Percent	N	Percent	
Total	81	33.1	164	66.9	
Residence	Dormitory	52	64.2	100	61.0
	Rental student house	9	11.1	11	6.7
	With family in Shiraz	20	24.7	53	32.3
Degree	BSs (Bachelor of Science)	48	59.3	122	74.4
	MSc (Master of Science)	14	17.3	23	14.0
	PhD (Doctor of Philosophy)	19	23.5	19	11.6

Table 2: The frequency distributions of probability of doing studied behaviors by participants

To what extent do you do each of the following behaviors?	Sex	Rarely N (%)	Sometimes N (%)	Often N (%)
Exercise regularly	Male	35(43.2)	29(35.8)	17(21.0)
	Female	67(40.8)	60(36.6)	37(22.6)
Eating fast foods	Male	13(16.0)	30(37.0)	38(47.0)
	Female	29(17.7)	68(41.5)	67(40.8)
High-speed driving	Male	43(53.0)	25(30.9)	13(16.1)
	Female	125(77.6)	20(12.4)	16(10.0)
Aggression	Male	18(22.3)	23(28.4)	40(49.3)
	Female	49(30.5)	46(28.6)	66(40.9)
Smoking	Male	80(98.8)	1(1.2)	0(0.0)
	Female	157(97.5)	3(1.9)	1(0.6)
Drinking alcohol	Male	80(98.8)	1(1.2)	0(0.0)
	Female	159(98.7)	2(1.3)	0(0.0)
Sexual relations outside of marriage	Male	81(100.0)	0(0.0)	0(0.0)
	Female	159(98.8)	2(1.2)	0(0.0)

Table 3: Correlation coefficients between study behaviors and two types of subjective norms

Behavior		Injunctive norms		Descriptive norms	
		Mean (SD)	R	Mean (SD)	R
Exercise regularly	Total	35.21 (13.28)	0.179**	8.23 (2.93)	0.039
	Male	33.59(12.57)	-0.049	8.27(2.31)	0.090
	Female	36.01(13.58)	0.286**	8.22(3.20)	0.022
Eating fast foods	Total	20.96 (8.63)	0.154*	11.35(3.74)	0.035
	Male	23.14(9.34)	0.250*	11.71(5.64)	0.002
	Female	19.84(8.07)	0.072	11.17(2.39)	0.074
High-speed driving	Total	20.01 (8.92)	0.104	8.64 (2.65)	0.148*
	Male	22.67(9.75)	0.060	9.41(2.89)	-0.081
	Female	18.70(8.28)	-0.056	8.27(2.61)	0.215*
Aggression	Total	18.15 (7.59)	-0.049	9.91 (2.19)	-0.075
	Male	18.90(9.03)	-0.088	10.46(2.16)	-0.139
	Female	17.78(6.77)	-0.001	9.64(2.17)	-0.135
Smoking	Total	18.71 (9.32)	-0.016	8.26 (2.55)	-0.041
	Male	20.23(10.19)	0.273*	9.46(2.73)	0.105
	Female	17.96(8.80)	-0.133	7.67(2.25)	-0.045
Drinking alcohol	Total	16.24 (8.42)	0.001	5.78 (2.21)	0.198**
	Male	18.46(10.15)	-0.032	6.23(2.31)	0.072
	Female	15.14(7.22)	0.022	5.54(2.13)	0.305**
Sexual relations outside of marriage	Total	16.11 (7.14)	-0.061	5.89 (2.11)	0.221**
	Male	18.16(8.18)	-0.101	6.39(2.19)	-0.029
	Female	15.09(6.35)	-0.029	5.65(2.02)	0.297**

*Correlation is significant at a 0.05 level. **Correlation is significant at a 0.01 level.

studies have focused solely on one behavior. This study aimed to compare the association between each type of subjective norm and seven different health-related behaviors in a population of college students at Shiraz University of Medical Sciences.

The study showed that fast food consumption was college students' most common high-risk behavior. In a study in Kyrgyzstan, Pengpid et al. (2014) reported an unhealthy diet as the most common high-risk behavior among college students.³⁴ Aggression was the second most common behavior among students in their study, consistent with ours. Similarly, Alimoradi et al. (2015) in Sanandaj, Iran, reported that more than 70% of students reported aggression when faced with problems.³⁵ However, in the study of ZinatMotlagh et al. (2013), this prevalence rate was 32%.³⁶ Physical inactivity was the third most common high-risk behavior among students in the study, with about 40 percent rarely engaging in regular physical activity and 36 percent exercising occasionally. This was consistent with the findings of Ziari et al. (2017) at Semnan University of Medical Sciences, Iran.³⁷

This study demonstrated that in the general population and among female students, regular physical activity significantly and positively correlated with Injunctive Norms (IN). In contrast, no significant relationship was observed with Descriptive Norms (DN). No significant relationship was observed between the two types of subjective norms in male students. These findings were consistent with the study by McLallen & Fishbein (2008).³⁸ In contrast to our study, Beville et al. (2017) in the United States showed that physical activity in male students had a

significant positive correlation with DN. In female students, significant associations were seen with both IN and DN, with DN having a stronger relationship with physical activity than IN.³² In another study by Hamilton & White (2008), IN had a stronger relationship than DN with adolescent physical activity in Australia.³⁹

According to the results of the present study, fast food consumption in the general population of students and male students had a significant positive correlation with IN, and no significant relationship was observed with DN. Similar to the findings of this study, Smith-McLallen & Fishbein (2018) reported that IN had a stronger correlation than DN with a healthy diet.³⁸ However, in the studies by Fudge (2013)⁴⁰ and Seo et al. (2011),⁴¹ DN was a better predictor of fast-food consumption. A study by Staunton et al. (2014) on university students in Australia showed that when there is a negative descriptive norm, exposure to a positive IN significantly reduces the intention to eat healthy foods. Conversely, when DN does not exist, exposure to IN does not affect it.⁴²

In contrast to the study by Pelsmaker & Janssens (2007), where high-risk driving had significant positive correlations with both Injunctive Norms (IN) and Descriptive Norms (DN), and these relationships were stronger with IN,⁴³ the present study found that high-speed driving had significant positive correlations with DN in the general population and among female students. Still, no significant relationship was seen with IN. This was consistent with the findings of Forward (2009).⁴⁴ Meanwhile, Cestac (2011) found

no significant relationship between high-risk driving and descriptive and injunctive norms.³³

In the present study, aggression had no significant correlation with the two types of IN and DN. However, some studies showed a significant positive correlation between verbal and physical violence in students with IN in the US⁴⁵ and Iran.³⁶ Dang & Liu (2020) showed that although both types of subjective norms were significantly correlated with adolescent aggression in China, this correlation was stronger for DN.⁴⁶

The present study demonstrated a significant positive correlation between smoking and IN, but only among male students. No significant relationship was observed with DN. These findings align with some other studies.³⁰ Conversely, Nan & Zhao (2015) found in their study on non-smoking adolescents in the United States that IN (measured by perceived peer approval) had a significant positive correlation, and DN (measured as perceived prevalence of peer smoking) had a significant negative correlation with smoking intention.³¹

According to the results of the current study, sexual relations outside of marriage were significantly related to DN in the general population and among female students. A study by Nurmala et al. (2019) in Indonesia showed that subjective norms did not have a significant relationship with premarital sex.⁴⁷ However, Boer & Westhoff (2006) argue that subjective norms are crucial in non-observational behaviors such as sex.²⁶

In the present study, alcohol consumption in both the general population and among female students showed a significant correlation with DN. This finding is consistent with Cho (2006), who found a stronger DN relationship with alcohol consumption.⁴⁸ However, several studies have highlighted the more important role of IN in predicting alcohol consumption behavior.^{21, 27, 28, 49}

In summary, when comparing the findings of the present study with those of other studies, many contradictions and differences emerge in the relationship between the two types of subjective norms—injunctive and descriptive—and various high-risk behaviors. These differences could be attributed to cultural variations, target group populations, and tools. Moreover, none of the studies addressed all high-risk behaviors simultaneously within the same target population. Therefore, the results of this study underscore the need for more extensive studies with larger sample sizes and even cross-cultural comparisons.

The main strength of the present study was the comparison of correlations between two types of subjective norms and seven high-risk behaviors within a single population. However, the study had limitations, such as a small sample size. Another limitation was that the information collected was based

on self-reporting. Despite efforts to ensure student anonymity, including asking for minimal demographic information, using anonymous questionnaires, and assuring them that their information would remain confidential, students may have been cautious in reporting sensitive behaviors such as smoking, alcohol consumption, and sexual relations. This caution may be due to using an electronic questionnaire during pandemic conditions, potentially leading to an underestimation of the prevalence of these behaviors. Therefore, the correlation coefficients between these behaviors and the two types of subjective norms should be interpreted with caution.

Conclusion

In general, the results of the present study offer a valuable perspective to enhance our understanding of the impact of subjective norms on various health-related behaviors. The study results indicated that the two types of subjective norms do not affect health behaviors equally. It is recommended that similar studies be conducted in different populations with larger sample sizes. Researchers are advised to measure both descriptive and injunctive norms when utilizing behavior change models that include the subjective norms construct and to examine the effect of the subjective norms, either collectively or separately, on behaviors.

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Authors' Contribution

MK: Conceptualization, investigation, resources, data curation, writing the original draft; and supervision, AM: Conceptualization, investigation, resources, data curation, writing the original draft, methodology, and supervision. LGH: Methodology, resources, data; curation, validation, and editing. YA: Methodology, data curation, writing, reviewing. All authors reviewed the manuscript and approved the final version. They take full responsibility for the content and writing of this article.

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