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### Predicting Behavior and Intention to Knowledge Sharing in Postgraduate Students Based on the Theory of Planned Behavior

**Background:** Knowledge sharing in university environments is essential and students' behavior is evaluated based on their beliefs, norms and attitudes. The theory of planned behavior is one of the most valuable behavior prediction models that can be used to examine the ideas, values, and attitudes in the context of knowledge sharing behavior. Considering the role of academics, especially postgraduate students in knowledge sharing, this study conducted with the aim of evaluating knowledge sharing behavior based on the theory of planned behavior among postgraduate students.

**Methods:** This descriptive study was conducted on 120 postgraduate students in school of public health of Shahid Sadoughi University of Medical Sciences through stratified sampling method in 2018. The data collection tool was a researcher-made questionnaire with confirmed reliability and validity. The data including descriptive statistics, Pearson correlation, ANOVA, Independent T-test and linear regression were analyzed by SPSS/16.

**Results:** The results showed that correlations between knowledge sharing behavior and intention in the theory of planned behavior constructs were statistically significant. The theory of planned behavior constructs explained 31.5% of the variances in knowledge sharing behaviors and 42.1% of the variances in knowledge sharing intention. Additionally, the subjective norms and attitudes were the strongest predictor for behavior and intention respectively.

**Conclusion:** In designing interventions aimed at improving knowledge sharing in universities, initially subjective norms should be addressed, and then the student's intention towards knowledge sharing should be examined. So, the theory of planned behavior may be used as a framework for educational interventions to improve knowledge sharing behaviors.

**Keywords:** Behavior, Knowledge, Intention, Theory of Planned Behavior

التنبؤ بالسلوك والنية لمشاركة المعرفة لدى طلاب الدراسات العليا بناءً على نظرية السلوك المخطط

الخلفية: يعد تبادل المعرفة في البيئات الجامعية أمراً ضرورياً ويتم تقييم سلوك الطلاب بناءً على معتقداتهم وقواعدهم ومواقفهم. تعد نظرية السلوك المخطط أحد نماذج التنبؤ بالسلوك الأكثر قيمة والتي يمكن استخدامها لدراسة الأفكار والقيم والمواقف في سياق سلوك تبادل المعرفة. بالنظر إلى دور الأكاديميين، وخاصة طلاب الدراسات العليا في تبادل المعرفة، أجريت هذه الدراسة بهدف تقييم سلوك تبادل المعرفة على أساس نظرية السلوك المخطط بين طلاب الدراسات العليا.

الطريقة: أجريت هذه الدراسة الوصفية على 120 طالب دراسات عليا في كلية الصحة العامة بجامعة شهيد صدوقي للعلوم الطبية من خلال طريقة أخذ العينات الطبقية في عام 2018. كانت أداة جمع البيانات استنباطاً من صنع الباحث مع موثوقية وصلاحية مؤكدين. تم تحليل البيانات بما في ذلك الإحصاءات الوصفية، ارتباط بيرسون، ANOVA، اختبار T المستقل والانحراف الخطي بواسطة برنامج SPSS الإصدار 16. النتائج: أظهرت النتائج أن الارتباط بين سلوك تبادل المعرفة والنية في نظرية بنيات السلوك المخطط كانت ذات دلالة إحصائية. أوضحت نظرية بنيات السلوك المخطط 31,5% من الفروق في سلوكيات تبادل المعرفة و 42,1% من الفروق في نية تبادل المعرفة. بالإضافة إلى ذلك، كانت المعايير والمواقف الذاتية أقوى تنبؤ للسلوك والنية على التوالي.

الخلاصة: عند تصميم التدخلات الهادفة إلى تحسين تبادل المعرفة في الجامعات، ينبغي تناول المعايير الذاتية في البداية، ومن ثم يجب فحص نية الطالب نحو تبادل المعرفة. لذلك، يمكن استخدام نظرية السلوك المخطط كإطار للتدخلات التعليمية لتحسين سلوكيات تبادل المعرفة.

الكلمات المفتاحية: السلوك، المعرفة، النية، نظرية السلوك المخطط

### پیش بینی رفتار و قصد اشتراک دانش در دانشجویان تحصیلات تکمیلی بر اساس نظریه رفتار برنامه ریزی شده

**زمینه و هدف:** اشتراک گذاری دانش در محیط های دانشگاهی امری ضروری است و رفتار دانشجویان در این زمینه بر اساس باورها، هنجارها و نگرش آن ها شکل می گیرد. نظریه رفتار برنامه ریزی شده یکی از معتبر ترین مدل های پیش بینی رفتار است که می تواند برای بررسی ایده ها، ارزش ها و نگرش ها در زمینه رفتار اشتراک دانش مورد استفاده قرار گیرد. با توجه به نقش دانشگاهیان به ویژه دانشجویان تحصیلات تکمیلی در فرایند اشتراک دانش، بررسی ادراکات و تمایلات آن ها ضروری به نظر می رسد. بدین منظور محققین این مطالعه را با هدف بررسی رفتار اشتراک گذاری دانش بر اساس نظریه رفتار برنامه ریزی شده در میان دانشجویان تحصیلات تکمیلی انجام دادند.

**روش:** این مطالعه یک مطالعه توصیفی است که بر روی 120 نفر از دانشجویان تحصیلات تکمیلی دانشکده بهداشت دانشگاه علوم پزشکی شهید صدوقی یزد در سال 1397 با استفاده از روش نمونه گیری طبقه ای انجام شد. ابزار گردآوری داده ها پرسشنامه محقق ساخته بود که پایایی و روایی آن مورد تأیید قرار گرفت. داده ها با استفاده از نرم افزار SPSS/16 تجزیه و تحلیل شدند. تجزیه و تحلیل داده ها حسب نیاز شامل آمار توصیفی، همبستگی پیرسون، آنالیز واریانس، تی مستقل و رگرسیون خطی بود.

**یافته ها:** نتایج نشان داد بین رفتار و قصد اشتراک دانش با تمام سازه های تئوری رفتاری برنامه ریزی همبستگی آماری معناداری وجود داشت. سازه های تئوری رفتار برنامه ریزی شده 31/5 درصد از واریانس رفتارهای اشتراک دانش و 42/1 درصد از واریانس قصد اشتراک گذاری دانش را توضیح دادند. علاوه بر این، هنجارهای ذهنی قوی ترین پیش بینی کننده رفتار و نگرش ها قوی ترین پیش بینی کننده قصد بودند. **نتیجه گیری:** در طراحی مداخلات با هدف بهبود اشتراک دانش در دانشگاه ها، ابتدا باید هنجارهای ذهنی را مورد توجه قرار داد و سپس قصد دانشجویان نسبت به اشتراک دانش را بررسی کرد. بنابراین، نظریه رفتار برنامه ریزی شده می تواند به عنوان یک چارچوب برای مداخلات آموزشی مورد استفاده قرار گیرد تا به بهبود رفتار اشتراک گذاری دانش کمک کند.

**واژه های کلیدی:** رفتار، دانش، قصد، نظریه رفتار برنامه ریزی شده

### پوست گریجویٹ طلبا کی رفتار و گفتار کی تہیوری کے مطابق میڈیکل طلبا کے درمیان نصابی معلومات کا تبادلہ

**بیک گراؤنڈ:** یونیورسٹی کے علمی ماحول میں ایک دوسرے سے نصابی معلومات کا تبادلہ ایک ضروری امر ہے۔ اس شعبے میں طلباء کی رفتار و گفتار ان کے عقائد و عادات و اطوار اور ان کے نظریات کی اساس پر لگایا جاسکتا ہے۔ پوست گریجویٹ میڈیکل طلباء کے درمیان نصابی معلومات کے تبادلے کی اہمیت کے پیش نظر مذکورہ بالا تہیوری کے تحت یہ تحقیق انجام دی گئی ہے تاکہ یہ دیکھا جاسکے کہ پوست گریجویٹ میڈیکل طلباء کے مابین معلومات کے تبادلے کا جائزہ لیا جاسکے۔

**روش:** یہ تحقیق یزد کی شہید صدوقی میڈیکل یونیورسٹی میں انجام دی گئی اس میں ایک سو بیس پوست گریجویٹ میڈیکل اسٹوڈنٹس نے شرکت کی۔ یہ تحقیق دوہزار اٹھارہ میں انجام پائی۔ ان طلباء کو ایک سوالنامہ دیا گیا جو محققین کے تیار کردہ سوالات پر مشتمل تھا۔ ڈیٹا کا تجزیہ ایس پی ایس ایس سافٹ ویئر سولہ، سے کیا گیا اور ضرورت پڑنے پر اسی سافٹ ویئر سے توصیفی اعداد و شمار، پیئرسن کورولیشن، اینوا اور اینڈی پیئنڈنٹ ٹی ٹسٹ اور لیٹیئر ریگریشن کو بھی اپنالائز کیا گیا تھا۔

**نتیجے:** اس تحقیق سے معلوم ہوتا ہے کہ پوست گریجویٹ میڈیکل طلباء کے عادات و اطوار اور باہمی معلومات کے تبادلے میں کافی گہرا رابطہ پایا جاتا ہے، نظریاتی عامل سب سے اہم عامل ہے جس کے ذریعے ہم طلباء کی جانب سے معلومات کے باہمی تبادلے کا پتہ چلا سکتے ہیں۔

**سفرارش:** یونیورسٹیوں میں طلباء کے باہمی علمی تبادلے کے عمل کو مزید پیشرفتہ بنانے کے لئے ضروری ہے کہ ان کے نظریات کو مد نظر رکھا جائے، اس نظریے کے مطابق رفتار و گفتار کا پتہ لگانے کی بہتر منصوبہ بندی کرکے بہتر روشوں کو متعارف کرایا جاسکتا ہے جو میڈیکل طلباء کی باہمی علمی کاوشوں میں معاون ثابت ہوسکتی ہیں۔

**کلیدی الفاظ:** رفتار و گفتار، علم، منصوبہ بندی

## INTRODUCTION

Knowledge is the key element of every organizational improvement. Maintaining a balance between knowledge creation activity and knowledge transfer across the organization is an important issue that should be taken into account by all organizations (1). Universities with extensive research facilities play a main role in knowledge creation and its transfer. The capability of universities in transferring and sharing knowledge is one of the key factors in knowledge management. Knowledge sharing is a bond between knowledge management and innovation (2).

Knowledge sharing is defined as a systematic activity for the transfer and exchange of knowledge and experience among members of a group or organization with a common purpose (1). The most important barrier of the effective implementation of knowledge management in any organization is the lack in the culture of knowledge sharing and also the numerous benefits of knowledge management among its members (3). Lack of knowledge sharing behavior in academic environments affects the students; they lose their interest in improving their organization knowledge after entering the work environments (4).

Knowledge sharing between faculty members and students is a voluntary activity. Knowledge sharing among students is essential and requires having a positive attitude toward it, so that students can share knowledge with no doubt. Due to numerous research activities, the postgraduate students can contribute to the growth of universities through scientific and research activities.

Researchers have investigated the knowledge sharing behavior using different theories such as The Theory of Planned Behavior (TPB), Social Capital Theory, Theories of Communication, etc., (5). In this regard, TPB is one of the most valuable behavior prediction models that can be used to examine the ideas, values, and attitudes in the context of knowledge sharing behavior. This theory is used to predict a wide range of behaviors in social psychology (6). Recently, this theory has been used to examine the knowledge sharing behavior in various organizations such as Hospitals (7), Banks (8), Oil Industry (9), Building Industry (10), Electronic and Telecommunication (6); however, no studies have been done in the academic environment yet.

In this model, Behavior depends on the person's intent for doing the behavior; however, the intention to do the behavior depends on the attitude of the individual towards that behavior (5). Attitude is the most effective predictor of the intention to do the behavior (11). The second predictor of intention is the subjective norms that imply an individual's perception of social pressure for doing or undoing the behavior (5). The third factor is perceived behavioral control and is defined as the person's viewpoint of his capacity to perform a particular behavior according to skills, opportunities, barriers, and resources available to implement a behavior (11). Most of the previous studies in this field are carried out in foreign countries, and since Iranian culture is a collective culture, hence the knowledge sharing behavior can have interesting results. To this end, the present study has examined the knowledge sharing behavior and

intention based on TPB among postgraduate students of Shahid Sadoughi University of Medical Sciences in Yazd.

## METHODS

This study is a descriptive cross-sectional study conducted in 2018. Participants in this study were postgraduate students in the school of public health of Shahid Sadoughi University of Medical Sciences in Yazd. Participates included the students of master and PhD degrees studying in the school of public health in semesters 1 or 3. Students who did not want to participate in the study or did not fully complete the questionnaire were excluded. Finally, 116 students were entered in this study.

The sample size was calculated as 112 students which was increased to 120 students for potential missing cases (based on  $CI=95\%$ ,  $r=0.3$  and the power of 90%). The method of sampling was stratified random sampling. For this study, postgraduate students in the school of public health including Environmental Health, Occupational Health, Ergonomics, Nutrition, Health Education, Disaster Events, HTA (Health Technology Assessment), Old age Health, Management of Health services, Waste management, biostatistics, Epidemiology and ecology were considered as strata. Random samples were then selected proportional to the size of each stratum (proportional allocation).

Data were collected using a researcher-made questionnaire. The questionnaire included 5 dimensions: Behavior with 5 questions (for example: I share my work knowledge and experience with my university professors), Intention with 5 questions (for example: I intend to share my knowledge appropriately with others), Attitude with 7 questions (for example, sharing knowledge with others is an enjoyable experience for me), Perceived behavioral control with 6 questions (For example: sharing knowledge is always possible for me), and Subjective norm with 5 question (For example: my professors believe that I should share my knowledge with others). A 3-point Likert-type scaling was used for scoring of knowledge sharing behavior (never=1, sometimes=2, always=3). Also, A 3-point Likert-type scaling was used for scoring of TPB constructs (disagree=1, neither agree nor disagree=2, agree=3).

The face validity of the questionnaire was evaluated by postgraduate students. They were asked to comment on the clarity, relevance, content, and simplicity of the questionnaire. Then, the required changes made in the questionnaire after reviewing the suggestions and comments. In order to assess the qualitative content validity, the questionnaire was distributed to 5 experts of related specialties. They were asked to comment on the appearance, grammar, wording, item allocation, scaling, writing style of questions and putting the proper words in the sentence. The changes were made in the questionnaire according to their opinions. The reliability of the questionnaire was confirmed using Cronbach's alpha coefficient. The results of reliability indicated that Cronbach's alpha coefficient for all constructs was higher than 0.8. Participation in this study was voluntary, and initially the researchers explained the aim of the study to all participants. Finally, 116 completed questionnaires were collected and analyzed. The SPSS version 21.0 was used for

statistical analyses. During the study, descriptive statistics, T-test, ANOVA, Pearson's correlation and linear regression were used as required. This article has a license from the research ethics committees of Shahid Sadoughi University of Medical Sciences, code IR.SSU.SPH.REC.1397.103.

**RESULTS**

The results showed that 82 students (70.4%) were female and 34 students (29.6%) were male. In terms of marital status, 52 students (45.1%) were married and 64 students (54.9%) were single. The results of table 1 showed that the mean score of knowledge sharing behavior and all TPB constructs were higher than the median.

Regarding knowledge sharing behavior, 56% of students stated that they shared their work knowledge, education and experience with teachers, 70.7% with colleagues, 81.9% with classmates and 83.5% with anyone who wanted their knowledge or experience to share. Also, 69% reported that if they have a new idea, they will share it with others. Correlation analysis showed that there was a positive relationship between knowledge sharing behavior and TPB constructs. The intention to knowledge sharing also had a positive and significant correlation with TPB constructs. Also, there was a positive and significant correlation between knowledge sharing behavior and intention. According to Table 1, the strongest correlation among the variables of this study was related to attitude and intention to knowledge sharing (R=0.66).

In this study, a linear regression was performed to examine the importance of the TPB constructs in explaining the variation in knowledge sharing behavior.

The results showed that approximately 31.5% of the variance of the knowledge sharing behavior was explained by the TPB constructs which was statistically significant (P <0.001) (table 2). According to the results presented in table 2, the increase of the subjective norm scores improves the behavior score by a ratio of 1:0.4. Also, the increase of perceived behavioral control score improves the behavior score by a ratio of 1:0.05, the increase of the attitude improves the behavior score by a ratio of 1:0.01, and the increase of intention score improves the behavior score by a ratio of 1:0.22. Meanwhile, the correlation between behaviors with subjective norms and intention were significant. With respect to the TPB constructs in explaining knowledge sharing behavior, subjective norms were the strongest predictor (Table 2).

The results also showed that 42.1% of the variance of intention to knowledge sharing was explained by the TPB constructs which was statistically significant (P <0.001) (table 3). Meanwhile, the correlation between intention with perceived behavioral control and attitude was significant. With respect to the TPB constructs in explaining intention to knowledge sharing, the attitude was the strongest predictor (Table 3).

The results showed that the mean scores of knowledge sharing behavior in single students were  $13.43 \pm 1.7$  and in

**Table 1. The correlation matrix of TPB constructs about knowledge sharing behavior**

|  | 1     | 2     | 3    | 4     | 5 | Mean  | SD  | Range |
|--|-------|-------|------|-------|---|-------|-----|-------|
| <b>1- Intention</b>                    | -     |       |      |       |   | 14.23 | 1.2 | 5-15  |
| <b>2- Attitude</b>                     | 0.66  | -     |      |       |   | 19.91 | 1.6 | 7-21  |
| <b>p-value</b>                         | 0.000 |       |      |       |   |       |     |       |
| <b>3- Perceived Behavioral Control</b> | 0.32  | 0.32  | -    |       |   | 14.27 | 2.5 | 6-18  |
| <b>p-value</b>                         | 0.001 | 0.000 |      |       |   |       |     |       |
| <b>4- Behavior</b>                     | 0.47  | 0.43  | 0.21 | -     |   | 13.43 | 1.7 | 5-15  |
| <b>p-value</b>                         | 0.000 | 0.000 | 0.02 |       |   |       |     |       |
| <b>5- Subjective Norms</b>             | 0.42  | 0.49  | 0.16 | 0.57  | - | 12.72 | 2.1 | 5-15  |
| <b>p-value</b>                         | 0.000 | 0.000 | 0.07 | 0.000 |   |       |     |       |

**Table 2. Regression analysis of TPB constructs as predictors of knowledge sharing behavior**

| Predictor                           | Standardized Coefficients $\beta$ | Unstandardize d Coefficients $\beta$ | t    | p     | f     | R <sup>2</sup> |
|-------------------------------------|-----------------------------------|--------------------------------------|------|-------|-------|----------------|
| <b>Constant</b>                     | -                                 | 4.12                                 | 2    | 0.04  |       |                |
| <b>Subjective Norms</b>             | 0.41                              | 0.33                                 | 4.5  | 0.000 |       |                |
| <b>Perceived Behavioral Control</b> | 0.05                              | 0.03                                 | 0.6  | 0.52  | 11.59 | 0.315          |
| <b>Attitude</b>                     | 0.01                              | 0.01                                 | 0.09 | 0.92  |       |                |
| <b>Intention</b>                    | 0.22                              | 0.3                                  | 2.05 | 0.04  |       |                |

**Table 3. Regression analysis of the TPB constructs as predictors of knowledge sharing intention**

| Predictor                    | Standardized Coefficients $\beta$ | Unstandardized Coefficients $\beta$ | t    | p     | f     | R <sup>2</sup> |
|------------------------------|-----------------------------------|-------------------------------------|------|-------|-------|----------------|
| Constant                     | -                                 | 2.69                                | 1.96 | 0.05  |       |                |
| Subjective Norms             | 0.11                              | 0.07                                | 1.43 | 0.15  | 24.99 | 0.421          |
| Perceived Behavioral Control | 0.15                              | 0.07                                | 1.91 | 0.05  |       |                |
| Attitude                     | 0.52                              | 0.48                                | 6.11 | 0.000 |       |                |

**Table 4. The mean of knowledge sharing behavior and Intention based on demographic variables**

| Variable       | Behavior (M±SD) | P-value   | Intention (M±SD) | P-value |
|----------------|-----------------|-----------|------------------|---------|
| Age            | <25             | 13.29±1.4 | 14.07±1.4        |         |
|                | 26-30           | 13.44±1.8 | 14.11±1.3        | 0.71    |
|                | >30             | 13.43±1.8 | 14.31±1.2        |         |
| Gender         | Female          | 13.43±1.6 | 14.25±1.2        |         |
|                | MALE            | 13.39±1.9 | 14.15±1.3        | 0.69    |
| Marital status | Single          | 13.43±1.7 | 14.20±1.2        |         |
|                | Married         | 13.36±1.7 | 14.21±1.3        | 0.96    |

married students were  $13.36 \pm 1.7$  (Table 4). The mean score of knowledge sharing behavior in female and male students was  $13.43 \pm 1.6$  and  $13.39 \pm 1.9$ , respectively, that were not significantly different (Table 4). According to ANOVA, the mean score of knowledge sharing behavior in all age groups, was almost equal (Table 4). In the context of the intention to knowledge sharing, the results showed that the mean score of female and male students was  $14.25 \pm 1.2$  and  $14.15 \pm 1.3$ , respectively, which were approximately equal. Indeed, the mean score of intent in single and married students was also approximately equal. Our findings showed no significant correlation between behavior and intention to knowledge sharing with demographic variables (Table 4).

**DISCUSSION**

The purpose of this study was to investigate the knowledge sharing behavior based on TPB among postgraduate students. The results showed that approximately 31.5% of the variance of the knowledge sharing behavior was explained by TPB constructs. This rate is relatively low for predicting behavior which is consistent with Hosseini et al. study (6). This may be due to other effective factors, such as personality characteristics, academic environment and motivational or deterrent factors. According to Farajpahlou et al.'s study (2016), the barriers to knowledge sharing were included competition, lack of deep interaction, collaboration and trust among students and lack of desire or the ability to knowledge sharing (12). In this study, intention and subjective norms were significantly predictive factors of knowledge sharing behavior. With respect to the TPB constructs in explaining knowledge sharing behavior, subjective norms were the strongest predictor. The significant effect of subjective norms on the knowledge

sharing behavior shows the fact that from the viewpoint of a student, the expectations of professors and colleagues to knowledge sharing are very important. If students know the sharing of knowledge is valuable to others, they will more likely participate in knowledge sharing. Therefore, university administrators have to pay special attention to students' subjective norms in order to create collective thinking to create creativity and innovation in universities. The direct effect of the intention on knowledge sharing behavior has also been proved in various studies (4, 6, 11, 13). Therefore, when the intention to knowledge sharing is created in students, then the behavior (action) occurs.

The comparison of the mean score of TPB constructs showed that the intention had the highest mean compared to the mean range which is consistent with Esmail panah and khayat Moghadam (2013) (14). This means that students are fully aware of the importance of sharing knowledge. Therefore, they will share their skills and knowledge with others when they get necessary opportunities and resources. Academic administrators can enhance cooperation and trust among students through incentive policies, time allocations, and appropriate funding for students to increase their knowledge sharing behaviors.

The results showed that students have a positive attitude toward sharing knowledge with others. Esmail panah and khayat Moghadam (2013) examined the status of knowledge sharing among faculty members. They showed participants had a favorable attitude toward knowledge sharing (14). In Nordin's study (2012), the positive attitude toward knowledge sharing in an ideal situation and subjective norms was fairly favorable (15). Forming student associations, periodic meetings with students, and forming students' teams for work on educational and research topics can

improve their attitude toward knowledge sharing. In this study, attitude and perceived behavioral control were significantly predictive factors of knowledge sharing intention which are consistent with other studies (6, 11, 16-18). Farajpahlou et al.'s study (2016) reported that postgraduate students have a positive attitude toward knowledge sharing, but its continuity needs efforts of university administrators (12). Also in Goh & Sandhu study (2013), attitude and perceived behavioral control influenced the intention to knowledge sharing among faculty members of the University of Malaysia (19). Therefore, if students find knowledge sharing as an enjoyable activity, they will plan and try to continuously share their knowledge with others.

The regression analysis showed that attitude towards knowledge sharing was the strongest predictor for intention. In addition, correlation analysis showed that the strongest correlation coefficient among TPB constructs was between attitude and intention which supports the results of Biranvand et al.'s study (20). Previous research has also confirmed the greater impact of the attitude toward knowledge sharing compared to other TPB constructs (6, 21, 22). In the study of Esmail panah and Khayat Moghadam (2013), the attitude towards sharing knowledge was recognized as the most important predictor of intention (14). Fullwood et al. (2000) believed that knowledge sharing between graduate students is more influenced by students' attitudes and beliefs (23).

Positive attitudes lead to more intent to do knowledge sharing behaviors since in this way students can increase their communication and interaction with their classmates (23). Yang & Lai (2011) also reported that attitude affects knowledge sharing behavior indirectly (24). This relationship has also been proved in other studies (25, 26). One of the limitations of this study is the lack of evaluation of individual and organizational factors affecting knowledge sharing behavior. It is suggested that future studies examine the relationship between knowledge sharing behavior with innovation and entrepreneurship.

This study showed that subjective norms have a positive effect on knowledge sharing behavior. Therefore, university professors should practically co-operate in knowledge sharing behavior and transfer their knowledge to the students. The strong communication platform between professors and students provides more appropriate conditions for social interaction. Holding face-to-face meetings with students can provide this opportunity.

Meanwhile, this study showed that creating a positive attitude towards knowledge sharing leads to the enhancement of intention for sharing ideas. Creating a reward system, creating a sense of usefulness, and enjoying helping others can affect attitude improvement. It is recommended that the academic environments to be as free environments for students to express their ideas and opinions without any fear. Indeed, improving communication between university and industry can provide opportunities for students to learn more to expand knowledge sharing behavior in the workplace. Future studies can provide more complete results by examining the effect of knowledge sharing behavior on academic performance, creativity, and student innovation. Also, assessing the impact of personality bridging on knowledge sharing behavior can be effective in this regard.

#### Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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