



# Attributes, Causes, and Outcomes of Health-Related Procrastination in Nurses: A Qualitative Content Analysis

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## Abstract

**Objectives:** In the field of health, procrastination is a relatively new but important issue. Most studies on procrastination deal with academic procrastination while no study, to the best of our knowledge, is available regarding the issue of health-related procrastination. Therefore, the present study was conducted to discover the attributes, causes, and outcomes of the health-related procrastination in nurses.

**Materials and Methods:** This conventional, qualitative, content analysis was conducted on 13 nurses (including 5 males and 8 females with a mean age of 34.76 years) from academic hospitals affiliated with Iran University and Gonabad University of Medical Sciences using a purposive sampling technique. The data were collected from October 2016 to December 2017 through face-to-face semi-structured interviews and field notes.

**Results:** The attributes of procrastination included a gap between intention and action, illogical delays, and delays in doing health tasks. The factors included present-biased and comfort over hardship preferences, risk taking, avoidance behaviors, self-satisfaction, inner tendencies, the nursing job, the nature of the problem, and beliefs. The outcomes included psychological, physical, and social problems.

**Conclusions:** The results of this study provided an in-depth understanding of the concept of health-related procrastination. Thus, the findings can help design health education interventions and promote nurses' health.

**Keywords:** Qualitative research, Health, Nurses, Procrastination

## Introduction

Health promotion is rapidly becoming a major concern in health care. The World Health Organization has emphasized the need for transition from a treatment approach to a prevention approach due to the heavy costs of health care (1). Health behaviors such as exercising, dieting, getting enough sleep, and complying with medical advice are crucial determinants of health and well-being. The failure to perform these behaviors has adverse consequences and it is, therefore, very important to promote health behaviors (2). Nowadays, the sole focus on therapeutic strategies is shifted to the promotion of public health through planning and education within the community and nurses have a special role in this endeavor (3). They constitute the largest group of health care workers and deal with the health and survival of people. The quality of health care greatly depends on the nurses' health (4) and a high level of health has significant implications for society (5). However, nurses have poorer health than other health care practitioners because of their more strenuous work and are 4.2% more prone to health risks compared to physicians. In addition, about 70% of the workload in health systems is borne by nurses. The very sensitive situations nurses encounter when performing

their duties will affect their physical and mental health. Further, unsuccessful diets, inadequate physical activity, and poor mental health are more prevalent among nurses. Furthermore, nurses cannot meet the needs of the patients unless they care about their own health and do not procrastinate in relation to their health (3).

Procrastination is a behavioral style that reflects self-regulatory failure, which involves delays in the start or completion of tasks (6) and is highly frequent and appears to be increasing even further (7). The history of procrastination dates back to three thousand years ago (8) and it is considered as a problematic phenomenon that most people would like to control (7). Moreover, it is associated with higher anxiety, depression, and perceived stress (6) and has a negative effect on people's well-being (8), general physical health, their diet, and exercise (9). Similarly, procrastination is a delicate concept that is perceived differently by different people (10). To address health-related procrastination in nurses, it is essential to completely analyze the attributes, causes, and outcomes of health-related procrastination and offer specific definitions in this regard. Nurses work with patients and more often witness the complications caused by health-related procrastination. Additionally,

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procrastination causes harm to occupational progress, opportunity losses, and compromised relationships with others (11). Therefore, the present study aimed to identify the attributes, causes, and outcomes of the health-related procrastination in nurses.

## Materials and Methods

### Design

The present study used qualitative content analysis with an inductive approach. Inductive content analysis is used in cases where previous research on a phenomenon is limited and thus coded categories are directly extracted from the data. Given the lack of studies on health-related procrastination, inductive content analysis was utilized in this study (12).

### Participants

In general, 13 nurses from hospitals affiliated to Gonabad University and Iran University of Medical Sciences were interviewed in the present study. Most nurses were females, married, and had a bachelor's degree in nursing, were within the age range of 20-55 years, and had a minimum of one year and a maximum of 30 years of nursing work experience. The inclusion criteria included showing a willingness to participate in the study, having at least a bachelor's degree in nursing, having at least one year of work experience, and having no severe stress in the last 6 months.

Considering different conditions prevailing in small towns and large cities, as well as ensuring maximum diversity, the sampling was performed on nurses working at Bohloul Academic hospital affiliated with Gonabad University of Medical Sciences (Gonabad, Khorasan Razavi province, Iran), as well as Firoozgar and Hazrat-e Rasool hospitals affiliated with Iran University of Medical Sciences (Tehran, Iran).

### Data Collection

The data were collected from October 2016 to December 2017 using semi-structured interviews and field notes. Each interview lasted between 40 and 80 minutes, which was conducted individually. The main question posed to the participants was *"Please describe one of the things you have procrastinated in relation to your health."* During the

interview and according to participants' statements, more detail was obtained by asking in-depth questions about the concept under study. All the interviews were reviewed several times by the researcher after recording and transcription, followed by classifying the codes to obtain the themes and extract the main themes. Further, field notes were simultaneously coded and incorporated in the analysis process. The participants were selected through a purposive sampling method and showed characteristics such as showing a willingness to participate in the study and share their experiences, having at least one year of clinical experience, being able to build a suitable rapport, having fluency in the Persian language, having interest, being able to speak, and having rich information. On the other hand, the only exclusion criterion was related to subjects changing their mind during or after interview recording. In such a case, the recording was immediately deleted in the presence of the participants and they were excluded from the study. The sampling continued until data saturation.

### Data Analysis

Data were analyzed using content analysis in accordance with the method by Graneheim and Lundman (13), which is a systematic and objective research method for describing the phenomena. This method has been widely used in health studies and is also known as a method for analyzing textual data. Some steps were taken according to the method by Graneheim and Lundman. The transcription of the entire interview was immediately read for comprehensively understanding its content, defining the meaning units and initial codes, classifying similar initial codes in subthemes, and determining the main theme. Table 1 provides an example of statements, codes, and sub-themes and Table 2 presents an example of the sub-themes and themes.

### Rigor

The researcher considered several items in order to increase the validity or acceptability of the data. An appropriate place and enough time were allocated to the interviews for data collection and analysis. In addition, the interview tapes were frequently played and the interview text and notes were reviewed several times for immersion in the

**Table 1.** An Example of the Statements, Codes, and Sub-themes

Sub-theme	Code	Statement
Being healthy now	Delaying treatment seeking due to the present health status	<i>"It has been a while that I have had hypertension, but I keep postponing a check-up because I think that I am fine now."</i>
	Not considering health as a priority due to the present health status	<i>Well, health is not a priority to me right now because I am healthy."</i>
	Postponing health-related tasks to not abandoning the other tasks	<i>"I am healthy now. If I postpone my health-related tasks, I can manage my other tasks, but if I postpone my other duties, my work won't get done."</i>
	Not paying attention to one's health because of the present health status	<i>"As I am healthy right now, I do not really notice it."</i>
	Not valuing health due to the present health status	<i>"I do not value my health because I am healthy now."</i>

**Table 2.** An Example of the Sub-themes and Themes

Theme	Sub-theme
Present-biased preferences	Being healthy now
	Being uncertain of future health
	Preferring the present to the future
	Having exaggerated optimism
	Being able to perform the task in the future

data. Further, a combination of multiple data collection methods was used, including interviews and field notes. The sampling was performed with maximum diversity in terms of age, education, gender, work experience, place of service, and ward of service (i.e., supervisor, gynecology, CCU, nephrology, NICU, general surgery, endocrinology, orthopedics, emergency, pediatrics, and rheumatology) in order to increase the transferability of the findings. Furthermore, member check was used to verify the accuracy of the data and the extracted codes or to modify them and peer check was performed by supervisors, advisors, and the other experts for matching and ensuring the consistency of the categories with participants' statements. The researcher's ideas and assumptions were specified in advance in order to prevent them from affecting the data analysis. Moreover, the transcriptions of a number of interviews and extracted codes, as well as categories were provided to non-involved colleagues and faculty members who were familiar with qualitative research analysis and were asked to examine the accuracy of the encoding process.

## Results

Table 3 presents the demographic information of the participants. The analysis of the interviews and field notes led to the extraction of 1769 open codes that were classified into 142 subthemes based on their similarities. The initial subthemes were compared once again and those with conceptual similarity were integrated and eventually sorted into three categories including the attributes, factors, and outcomes of health-related procrastination.

### Procrastination Attributes

The attributes of procrastination included a gap between intention and action, illogical delays, and delays in doing health-related tasks.

#### A Gap Between Intention and Action

This theme emphasized a delay in performing health-related tasks, the inability to comply with one's health plans, and the rise and fall of intentions to perform health-related tasks.

In this respect, nurse No. 7 declared that *"I had a burning and frequent urination and kept postponing visiting the doctor so much that I eventually got severe pain in my flank and a fever."*

**Table 3.** Demographic Information of the Participants

Variable		No. (%)
Sex	Male	5 (38.47)
	Female	8 (61.53)
Age (y)	20-30	4 (30.76)
	31-40	5 (38.46)
	41-50	2 (15.39)
	51-60	2 (15.39)
Marital status	Married	8 (61.53)
	Single	5 (38.47)
Place of residence	Gonabad	5 (38.47)
	Tehran	8 (61.53)
Work experience (y)	1-10	7 (53.85)
	11-20	4 (30.77)
	21-30	2 (15.38)
Education	Bachelor's	10 (76.92)
	Master's	3 (23.08)

Similarly, nurse No. 5 mentioned that *"Following my health tasks is something that's always in the back of my mind, I think about it, plan for it, but then neglect actually performing it."*

Nurse No. 1 also indicated that *"I have seriously decided to start exercising and I have done it for a while with full energy, but then drop it and my willpower diminished and I started postponing it again."*

### Illogical Delays

This theme emphasized illogical delays in following health tasks despite the belief in their usefulness, necessity, and accessibility and in one's ability to perform them and despite the awareness and fear of the negative consequences of such delays.

Nurse No. 7, who procrastinated visiting a physician for treating a urinary tract infection, expressed that *"Although there're doctors all around us, I don't know why I keep delaying a visit."* Nurse No. 2, who was worried about her overweight, commented that *"I know exercising and dieting are the most important things for me, but I still keep delaying them."* In addition, nurse No. 9 stated that *"I get chest pain when working in the ward although there is an ECG in our very own ward, I always say, I'll just do it later."* Nurse No. 6 also believed that *"I know these delays will put me in trouble someday."*

### Delays in Doing Health Tasks

This theme dealt with the delays in performing health-promoting behaviors and delays in seeking treatment and following it up.

In this regard, nurse No. 11 stated that *"I know I have to exercise now and follow my diet, but I don't and I leave it for later."*

Moreover, nurse No. 5 mentioned that *"I have severe backaches. I even arranged myself a doctor appointment,*

but the date of the appointment passed by and I kept it for later“.

Similarly, nurse No. 4 commented that *“The ultrasound showed changes in my breast and the doctor said that I should get a mammogram although I delayed it so much that it metastasized to my underarm.”*

### Factors Affecting Procrastination

The factors affecting health-related procrastination included present-biased and comfort over hardship preferences, as well as risk taking, avoidance behaviors, self-satisfaction, inner tendencies, the nursing job, the nature of the problem, and beliefs.

#### Present-Biased Preferences

This theme emphasized the present health status, the uncertainty of future health, the preference of the present to the future, the presence of exaggerated optimism, and the possibility of performing the task in the future.

Nurse No. 11 indicated that *“Well, health is not my priority right now because I am healthy now.”* Nurse No. 13 declared that *“Two of our relatives had a very healthy lifestyle; had a healthy diet, natural foods, physical activity, clean air in the village and didn’t smoke, but both died of cancer, and then their brother, who had no physical activity, didn’t eat healthy foods, smoked two packs of cigarettes a day, had lived for nearly 100 years. When I see things like this, I tell myself, let’s just enjoy life until I’m alive.”* Nurse No. 11 expressed that *“I like to do things that give me pleasure at the moment, and well, the benefits of following your health tasks do not become evident until later.”* Nurse No. 4, who delayed seeking treatment for breast cancer, also mentioned that *“I thought I was a strong person and that illness was for others, not for me. I didn’t even think that I would get sick one day.”* Nurse No. 10 explained that *“I’m sure I’m not up for exercising right now, so I postpone it to some other time. Maybe, I will actually do it later.”*

#### Preferring Comfort Over Hardship

This theme addressed hardship, unpleasantness, as well as the exhausting and time-consuming nature of health tasks, stress avoidance, and self-treatment.

Nurse No. 10 stated that *“My blood lipid is high, but I have brought it under control by taking medications, which is much easier than exercising or dieting, and I don’t care if the drug is chemical and has side-effects.”* In this regard, nurse No. 3 believed that *“Most pleasurable habits like eating a fatty meal are harmful to the health and most unpleasant acts like following your diet are useful.”* In addition, nurse No. 9, who had asthma, indicated that *“When you have a chronic illness, treatment follow-up becomes very exhausting.”* Further, nurse No. 13, who used to work in a department where the majority of the patients were HBsAg positive, discussed her efforts to avoid stress and declared that *“I told myself, let it be, and then I didn’t do any of the screening tests and didn’t think about it at all*

*anymore.”* Similarly, nurse No. 11 stated that *“We have to book our appointments a few days in advance, and when we finally get the appointment, if it is for 2 o’clock, the doctor will visit us at 6, not to mention that there are imaging procedures, tests, injections, and medications, and all these issues affect health-related delays.”* Furthermore, nurse No. 7 explained about her treatment for back and neck pain as *“I self-treat at home. I take medicines and do special exercises that help because this is much easier than visiting a doctor.”*

#### Risk Taking

This theme focused on taking the risk of visceral stimulation, psychological problems, and beliefs.

Nurse No. 2, who was severely overweight, expressed that *“It is not all about health; sometimes, you can’t let go of your food dressing or a cola for the world.”* Moreover, nurse No. 12 stated that *“When I feel depressed, I no longer care if I have a disease.”*

Additionally, nurse No. 13, who had a history of heart attack, mentioned that *“When I was going to Mecca, I got an angiogram, and the doctors said that you should not go to Mecca, because the pilgrimage is dangerous for you, but I went anyway and took the risk”.*

#### Avoidance Behaviors

This theme was related to the fear of hearing bad news, a fear of consequence, and the denial of the disease. In this respect, nurse No. 12 explained that *“When I have a problem, I have a fear of going to the doctor because he might say I have a dangerous disease.”*

Additionally, nurse No. 6, who had a tumor in the head, asserted that *“The ordinary folks do not know what terrible days are ahead of them if they get a malignant disease, but I have seen their burden, and so I do not like to follow up on my own illnesses and keep postponing the task.”*

In addition, nurse No. 4, who had breast cancer, declared that *“The ultrasound showed changes in my breast, and the doctor told me that I should get a mammogram, but I said it’s impossible for me to get this disease because I do not have any of its risk factors.”*

#### Self-satisfaction

This theme emphasized making excuses and justifications, giving unjustifiable reasons, decreasing the feelings of guilt now, and issuing permissions for oneself.

Nurse No. 4, who delayed getting treatment for her breast cancer, mentioned that *“I was just looking for an excuse, and so I made an excuse for everything. When you look for an excuse, there will be many.”* Further, nurse No. 11 justified her smoking by saying that *“Not smoking inflicts even more stress on me, and the harms of this stress outweigh the harms of smoking.”* In this respect, nurse No. 2 stated that *“I fool myself to feel content.”* Likewise, nurse No. 1 commented that *“It’s been a year since I’ve got a prescription for different tests in my health insurance book,*

but I haven't taken them yet because I have to be fasting and sometimes I've been to a party the night before or have had guests or have been working a night shift and haven't been able to fast."

Moreover, nurse No. 5 believed that "By postponing my health tasks, I kind of fool myself and get rid of my guilty conscience." Similarly, nurse No. 3 added that "I usually allow myself not to do the things that I do not enjoy and only do whatever I please."

#### Inner Tendencies

This theme focused on desires and pleasures.

Nurse No. 3, who had diabetes, mentioned that "I have a strong desire to eat and the desire for eating overcomes all else, I can't get myself to stop eating and this makes me constantly repeat postponing something for the next time."

Further, nurse No. 1 stated that "The pleasure of indulging in a bite of pastry makes me say that I will only eat this once and stop from tomorrow."

#### The Nursing Job: A Barrier or Stimulator

This theme was related to the pressures of nursing, the unwillingness to stay in the hospital while not having work shifts, nurses' expectations, along with nurses' distrust of physicians and the health care system.

In this regard, nurse No. 8, who was on the morning shift, indicated that "The shifts are really heavy-duty. When I get home, I'm so tired that I can't do the house chores. Now, imagine the days when I have to work long shifts." Furthermore, nurse No. 7 declared that "I can put up with illness but can't go to a hospital when I'm not working." Likewise, nurse No. 2 stated that "When my shift is over, I just want to get out of the hospital." and nurse No. 10 added that "I do not expect to sit in the line for a doctor's appointment".

Nurse No. 6, whose family member had gone to the operating room for a surgery, explained that "I saw the doctor walking into the operating room, but when the patients later came out of the operating room, I found that he had operated on three patients during this time. It is obvious that the doctor has been in the room but his students have performed the surgery. Well, this makes you lose your trust in the doctor and the system and everyone."

#### The Nature of the Problem

This theme emphasized the pain as severe or mild, acute or chronic and emergency or non-emergency and whether it disturbed other life functions leading to changes in the appearance.

In this respect, nurse No. 12 expressed that "The whole point is that I do not seek treatment until I get really sick or when the pain overcomes me. When the pain becomes too overbearing and I can't do anything else, then I'll seek treatment".

Moreover, nurse No. 8 stated that "Only when I have a serious problem that keeps me from going to work, only then

will I be forced to follow up on my problem."

Nurse No. 1 mentioned that "I usually postpone seeking treatment in mild illnesses."

Additionally, nurse No. 7 indicated that "I usually postpone non-emergency situations and I only treat those emergencies that I can't bear."

In this respect, nurse No. 7 declared that "I got the flu and I was forced to visit a doctor because it had disrupted all my duties in the family, work, and everything."

Similarly, nurse No. 12 stated that "I care very much about my skin and do not delay following up on my skin problems at all". Finally, nurse No. 2 expressed that "Beauty and a good shape are my motivation for exercising and dieting, not health."

#### Beliefs

This theme focused on opinion and false beliefs.

Nurse No. 10 explained that "Even if you're careful and control all your health issues, in the end, it all depends on fate."

In addition, nurse 11 mentioned that "Since drinking alcohol is forbidden in Islam, I don't drink at all, not even a drop or, for example, Islam advises brushing the teeth before saying prayers and I do it and never postpone it ever."

Nurse No. 6, who delayed seeking treatment for a tumor in the head, stated that "I believe that if you look for a disease in yourself, you are more likely to get diseases, and people who are very concerned about their health are more likely to get sick."

Nurse No. 11 asserted that "I know about the consequences of delaying my health tasks, but I do not believe it, I say to myself that nothing will happen."

#### Outcomes of Health-Related Procrastination

The outcomes included physical, psychological, and social problems.

#### Physical Problems

This theme focused on the weight gain, the aggravation of illness, and the lengthening of the recovery period associated with health-related procrastination.

Nurse No. 5 indicated that "I've become overweight and have high blood pressure and fat because I postponed dieting and exercising."

Further, nurse 4, who had delayed getting a mammography for breast cancer screening, stated that "My delay resulted in a metastasis of the lump to my armpit and a longer treatment period."

#### Psychological Problems

This theme emphasized anxiety, stress, self-reproach, regret, mental preoccupation, remorse and sorrow, guilt, and discomfort.

In this regard, nurse No. 3 explained that "I'm worried that these delays will eventually put me in trouble."

Nurse No. 4, who delayed referring to a doctor for the

treatment of her breast cancer, mentioned that *"I felt awful. I had a lot of stress because I blamed myself for it."* She also stated that *"I constantly reproach myself that I wish I would have visited a doctor and would not have made so much trouble for everyone."* She then added, *"I regret not seeking on-time treatment, it's soon too late."*

Furthermore, nurse No. 1 declared that *"The thought of having to exercise is always in the back of my mind, but I keep postponing it."*

Moreover, nurse No. 5 expressed that *"I want to go back to the days when I exercised regularly, but instead, I only sit and regret things."*

In this respect, nurse No. 2 stated that *"I really feel guilty for delaying my health tasks."*

Eventually, nurse No. 5 mentioned that *"I'm always frustrated about why I keep postponing these things."*

### Social Problems

This theme was related to family problems, poor social interactions, job problems, and low self-efficacy.

Nurse No. 4 stated that *"My life was disturbed because of this delay in treating my breast tumor. My life was a mess. My children, my husband, and I were all confused. My husband was in trouble because of taking too much time off work."* She added that *"I preferred not to go out or have anyone come over. If people said they wanted to come over, I would be stressed and would ask others to tell them that I was not home."*

Additionally, nurse No. 7, who delayed getting treatment for her back and neck pain, explained that *"My job performance has been diminishing. When my neck is painful I can't interact well with the patients, and this has made the supervisor unhappy with my work."*

Similarly, nurse No. 12 indicated that *"When I delay my health tasks, I doubt my own abilities, my attitude toward myself changes and I lose my confidence."*

### Discussion

The findings showed that health-related procrastination attributes are rooted in concepts including a gap between intention and action, illogical delays, delays in prevention, and delays in seeking treatment. In addition, the participating nurses believed that the gap between intention and action manifested itself by postponing intended health tasks, the inability to comply with one's own health plans, along with the rise and fall of intentions. Procrastinators always have the intention to perform their health tasks, but keep postponing them, do not have the power to comply with the decisions they have taken with regard to their health tasks. They sometimes make a serious decision to perform their health tasks, but their willpower diminishes after a while. The findings of a review study indicated that continuous procrastination does not mean the absence of the intention to start or complete the tasks, but it is rather a problem in accomplishing the goals (14). Other studies have also proposed procrastination as

a gap between intention and action (2, 4). Further, some other studies defined it as delaying the implementation of intentions (15) and leaving the tasks for another time (8). One review study reported that intentions are sometimes temporarily set aside rather than being actually abandoned, meaning that they go through a rise and fall cycle (2).

Another finding associated with health-related procrastination attributes was illogical delays in health tasks despite the belief in their usefulness, necessity, and accessibility and in one's own ability to perform them despite the awareness and fear of the negative consequences of such delays. Furthermore, other studies also emphasized the unreasonableness of procrastination (9,14,16,17) and defined procrastination as an unnecessary delay with no constraints despite the expectation of a deterioration in conditions due to this delay (2). The lack of constraints reported in the cited study corresponds to 'one's own ability to perform the tasks' in the present study. It should be noted that other studies have not discussed accessibility since their samples were not nurses. Meanwhile, seeking treatment and its follow-up is easier for nurses since they work in hospitals. This finding explains why the nurses defined procrastination as delays in performing health tasks despite their easy accessibility.

Other health-related procrastination attributes included delays in performing health-promoting behaviors and delays in treatment seeking and follow-up. According to Pender, health-promoting behaviors are any action that can be taken to increase or maintain a person's or group's level of health and self-actualization, including a poor diet, inactivity, a lack of physical activity, and smoking (3). Moreover, delay in seeking treatment is a health-specific procrastination that extends the time between an individual's learning about the symptoms of his disease and the time he seeks medical advice (6).

The findings of this study suggested that present-biased preference is a factor that affects health-related procrastination. Present-biased preference is manifested by preferring the present to the future, exaggerated optimism, the present health status, the uncertainty of future health, and the possibility of performing the task in the future. There is evidence that people allocate their time, resources, and attention to more pressing events occurring in the present (in the coming days) rather than those that may occur in a future time, namely, in several months or years ahead (18). In addition, some studies showed that focusing on immediate interests and prioritizing present over far-reaching logical goals affect procrastination (2,8). People who have trouble resisting temptations or inhibiting their impulses are more likely to procrastinate (2). Other studies indicated that too much self-confidence affects procrastination (2,9). This concept can be similar to the concept of exaggerated optimism extracted in the present study since the participants believed that illness was not something meant for them but rather it belonged to others who visited the hospital. A review study reported

that procrastinators believe that leaving duties for the future is better than having to experience present failure. In their viewpoints, procrastination was more an implicit commitment to “doing it later” rather than “not doing it now” (2).

Preferring comfort over hardship was another factor affecting health-related procrastination, which is represented by the hard, unpleasant, exhaustive, and time-consuming nature of health tasks, comfort-seeking and avoiding stress, and self-treatment. Studies suggested that the reasons why people procrastinate include being anxiety-provoking (8), not enjoyable (2), hard (4,9), and exhausting and boring (8). Therefore, procrastinators delay health behaviors that appear anxiety-provoking and unpleasant (e.g., seeking treatment and following it up). It should be mentioned that previous studies did not focus on self-treatment, which is because the present study was conducted on nurses who had information about diseases and their treatment and this information helped them perform self-treatment tending to being easier.

Risk taking was another factor that contributed to health-related procrastination. Although risk taking was not directly mentioned in other studies, people were reported to prefer activities that give an immediate joy (8). In other words, they deliberately postpone performing these tasks (2,14,16,17) despite knowing the negative consequences of delaying certain behaviors (19) and regardless of having ample time to perform those tasks (20). They also expect the condition to deteriorate due to the delay (2). All the above-mentioned issues show an implicit risk-taking behavior in the procrastinator.

The present findings also demonstrated that avoidance behaviors affect health-related procrastination. Another study reported avoidance behaviors and a fear of failure as some of the factors that affected procrastination (14).

Self-satisfaction was considered as another factor that has an effect on health-related procrastination, which is manifested by making excuses and justifications, giving unjustifiable reasons, issuing permissions for oneself, and decreasing feelings of guilt now. Additionally, other studies reported making excuses and justification (2,6) as well as presenting unjustifiable reasons and issuing permissions (2) as the factors contributing to procrastination. Similarly, inner tendencies including desires and pleasures were other factors that affected health-related procrastination in the present study. Procrastinators have trouble postponing immediate enjoyment (21) and prefer activities with immediate rewards when there is a need for prioritization (14). One study also reported that procrastination is a strategy for freeing the mind of uncomfortable feelings and procrastinating a planned behavior is actually an excuse for not doing it now and being relaxed now (2).

Another factor identified in this study was “the nursing job: a barrier or stimulator”, which has not been mentioned in other studies. This factor emphasizes the pressures of nursing, the unwillingness to stay in the hospital

beyond their work shifts, the positives, and downsides of nursing, nurses’ expectations, along with nurses’ distrust of physicians and the health care system. This different finding can be attributed to the fact that the present study was conducted on nurses while the population in the other studies was mostly comprised of students in different fields with various job pressures, interests and expectations. Moreover, nurses can experience different conditions because they generally witness more medical errors.

The nature of the health problem was another factor that had an impact on health-related procrastination in the present study, which represented the nature of the problem/pain as severe or mild, acute or chronic and emergency or non-emergency and whether it disturbed other life functions and led to changes in the appearance. Although other studies have not addressed this issue due to their emphasis on academic or general procrastination, a study on health-related procrastination demonstrated that the nature of the problem and the presence of symptoms other than a breast tumor are factors that affect treatment-seeking delays in breast cancer (22). In one qualitative study, none of the patients wished for not having cancer when they were asked about life remorse after cancer and one patient with a history of Bell’s palsy regretted the lack of symmetry in her face and her diminished beauty (23).

In addition, the belief was another factor that affected health-related procrastination in the present study. Other studies also noted false and irrational beliefs as the factors that contributed to procrastination (8,9,22).

Based on the findings of the present study, physical problems were one of the outcomes of health-related procrastination. Sirois et al. proposed illness and physical problems as the outcomes of procrastination and reported that procrastination leads to physical problems and illness by building up stress and neglecting health behaviors and delaying treatment-seeking (6).

Psychological problems including anxiety, stress, self-reproach, regret, mental preoccupation, remorse and sorrow, guilt, and discomfort were other detected outcomes of health-related procrastination in this study. Several studies also reported stress, anxiety and distress, self-reproach, self-criticism, and guilt as the outcomes of procrastination (6,8,14,24). Social problems were other factors affecting health-related procrastination in the present study, which were represented by family problems, poor social interactions, job problems, and low self-efficacy. Other studies further indicated low self-efficacy because of health-related procrastination (9,10,14,17). However, previous studies have not mentioned other social problems as an outcome of procrastination, which can be justified by the fact that health-related procrastination can lead to more physical problems compared to academic or general procrastination. Therefore, these physical problems affect family life, work, and social interactions. The findings can help design health education interventions and

promote nurses' health. Further, the results of this study can be used to design a questionnaire on health-related procrastination in nurses.

One of the limitations of this study was the unwillingness of some nurses to speak about special diseases (e.g., cancer) and to recount their experiences about that. Nevertheless, we tried to reduce this limitation by stressing the point that the information will remain confidential. Another limitation of this study, as with all qualitative studies, was the small sample size, which limited generalizability to a broader society. Furthermore, the study was only conducted on nurses other characteristics, causes, and consequences of health-related procrastination may have also been revealed if the study had been conducted in different communities. Therefore, further research is recommended among other communities such as teachers, workers, and the like.

### Conclusions

In general, health-related procrastination is an illogical gap between the intention and the performance of health tasks associated with physical, psychological, and social problems affected by factors including present-biased and comfort over hardship preferences, risk taking, avoidance behaviors, self-satisfaction, inner tendencies, the nursing job in addition to the nature of the problem and beliefs. Considering future outcomes, reforming opinions and beliefs, reducing mental health problems (i.e., stress and anxiety), and avoiding justification can be effective in reducing health-related procrastination.

The results of this study reveal some aspects of health-related procrastination in nurses. It appears that the intention to perform health tasks is stronger in certain situations and leads to the fulfillment of those tasks during a short period. However, this intention is weakened after a while and will not continue with its initial strength and gradually becomes abandoned. In addition, people accept the risk in some situations and procrastinate their health tasks. Accordingly, further studies are recommended to be conducted on the factors that diminish the initial strength of intentions and make people take the risk and procrastinate their health tasks.

### Conflict of Interests

Authors have no conflict of interests.

### Ethical Issues

Permission to conduct the study was obtained from the Ethics Committee of Iran University of Medical Sciences (IR.IUMS.REC 1395.95-03-123-29560). Additionally, the participants were briefed on the study objectives and methods. Finally, participants' privacy was respected throughout the study and they were ensured of the confidentiality of their data before submitting written informed consent for participating in the study and

recording the interviews. Participation was completely voluntary.

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