

Study of Some Demographic Properties Influencing the Burnout Levels of Nurses in Public Hospitals by CHAID Analysis

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Abstract

In this study, it is aimed to identify the burnout levels of nurses which prevent them from doing their business more efficiently and to examine the effects of various demographic variables on burnout. The data necessary for the research have been gathered from 256 nurses working in public hospitals within borders of central district of Denizli province using “Maslach Burnout Inventory”. They were analyzed by SPSS and CHAID was used as the analysis method. In consequence it has been determined that nurses experience low-level emotional exhaustion, average-level depersonalization and high-level decrease in personal accomplishment. It has also been concluded that burnout levels are affected by demographic properties such as age, marital status, tenure of office, daily workload, education and income level.

Keywords: Burnout, Nursery, CHAID Analysis.

JEL Classification Codes: D23, M12, M54.

Kamu Hastanelerinde Çalışan Hemşirelerin Tükenmişlik Düzeylerine Etki Eden Bazı Demografik Özelliklerin CHAID Analizi İle İncelenmesi

Öz

Bu araştırmada hemşirelerin işlerini daha etkin yapmalarının önünde engel olan tükenmişlik seviyelerinin belirlenmesi ve çeşitli demografik değişkenlerin tükenmişlik üzerindeki etkilerinin incelenmesi amaçlanmıştır. Araştırma için gereken veriler “Maslach Tükenmişlik Ölçeği” kullanılarak Denizli İli Merkez ilçe sınırları içinde yer alan kamu hastanelerinde çalışan 256 hemşireden toplanmıştır. Veriler SPSS programında analiz edilmiş ve analiz yöntemi olarak CHAID Analizi kullanılmıştır. Analiz sonucunda hemşirelerin düşük düzeyde duygusal tükenme, orta düzeyde duyarsızlaşma ve yüksek düzeyde kişisel başarıda azalma yaşadıkları tespit edilmiştir. Ayrıca tükenmişlik düzeylerinin yaş, medeni durum, meslekte çalışma süresi, günlük iş yükü, eğitim ve gelir düzeyi gibi demografik özelliklerden etkilendiği belirlenmiştir.

Anahtar Kelimeler: Tükenmişlik, Hemşirelik, CHAID Analizi.

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1. Introduction

Burnout, which was first used by Herbert Freudenberger (Yıldırım & İçerli, 2010, 124) who worked in a clinic in the middle of 1970s, to identify a situation observed frequently among the health care workers and characterized by fatigue, disappointment and quitting, has been considered an occupational threat in people-oriented jobs like service, education and health care (Maslach & Goldberg, 1998, 63).

The burnout, which is observed to be of great importance to both individual and organisation in research conducted depending on the assumption that it is the result of mutual interaction between individual and work environment, can be simply identified as the exhaustion of physical and spiritual energy (Budak & Sürgevil, 2005, 95). It is the negative emotional reactions developed individually to be able to cope with the challenges encountered in work environment (İtalia et al., 2008, 676). In other words, it is a situation which holds symptoms like physical fatigue and developing a negative attitude towards the colleagues and life which appears after working for a long time in the environments where emotional demands are felt very intensely (Altay et al., 2010, 10). According to Maslach and Goldberg (1998), burnout is a long-term kind of reaction to chronic, emotional and interpersonal stress sources regarding the job, and is an individual stress experience existing within the entirety of social relationships.

As it has been commonly accepted in the literature, burnout has three sub-dimensions called emotional exhaustion, depersonalisation and personal accomplishment (Maslach & Jackson, 1981; Jackson & Maslach, 1982; Maslach & Jackson, 1985; Maslach & Goldberg, 1998). Emotional exhaustion is defined as the overloading of individual and the feeling of being exhausted. In this period the individuals feel themselves tired and emotionally worn (Güneşen & Üstün, 2008, 49). Emotional exhaustion represents the basic stress dimension of burnout. The person suffering burnout reckons he/she doesn't behave as giving and responsible as it was in the past towards the other people he/she services, and is filled with the feelings of tension and being encumbered, and the obligation to go to work the next day again becomes a substantial concern for him/her (Arı & Bal, 2008, 133). Depersonalisation is being uninterested in the others, getting distant, being indifferent and perceiving himself/herself and the ones he/she offers service negatively because of the hostile behaviours (Dikmetaş et al., 2011, 138). It usually develops as a reaction to overloading of emotional exhaustion but the real risk is that this indifference and disinterest can transform into a deviation from human phenomena (Maslach & Goldberg, 1998, 64). Depersonalisation represents the interpersonal relationships dimension of burnout. Personal accomplishment level, which is characterized by individual's tendency to assess himself/herself negatively, is related to decrease in occupational productivity and competitive emotions. People may have a feeling of failure and inadequacy in their business or

relationships with other people whom they interact with (Cordes & Dougherty, 1993, 623-624). This may deepen unless there is social support and professional opportunities are developed.

The burnout syndrome, which is often observed on people working in jobs requiring relationships with people, poses risk to health care workers as well. Nursing is characterised as a stressful job which involves intensive social relationships and has work overload due to a lot of both individual and environmental adverse factors (Aytaş et al., 2011, 27). That the nurses get the patients right, identify their needs and attain fruitful results depends on their ability to empathise (Ergin et al., 2009, 52). Work overload, time pressure, obligation to implement painful medical practices and the possibility of encountering undesirable consequences may cause the nurse to suffer from emotions such as guilt, fear and stress. These specific situations load the nurses emotionally and may lead them to have the feeling of burnout (Tunç et al., 2014, 47).

When we look into findings of various researches on the relationship between burnout levels of nurses and their demographic properties in the literature, it can be stated that burnout levels of nurses increase as the age and correspondently the tenure of office increase (Queiros et al., 2013; Şenturan et al., 2009; Silvia et al., 2005). It is seen that the ones with high level of education have higher level of burnout in comparison to the ones whose levels of education are low (Kaya & Ariöz, 2014; Helvacı & Turhan, 2013; Queiros et al., 2013; Kebapçı & Akyolcu, 2011; Lin et al., 2009; Akbolat & Işık, 2008). This could be stemming from either that the ones with high level of education have more stressful jobs requiring more responsibility or from the disappointment they suffer from since they have higher expectations of their jobs but they don't come true (Maslach et al., 2001, 410). Although it is suggested in literature that in terms of marital status the single or divorced nurses are more prone to burnout phenomenon in comparison to the married without children, (Akbolat & Işık, 2008; Silvia et al., 2005; Maslach et al., 2001) in some research the emotional exhaustion level of the married were found to be higher in comparison with the unmarried (Kebapçı & Akyolcu, 2011; Lin et al., 2009) and in some research it was established that burnout levels of nurses don't change significantly according to their marital status (Queiros et al., 2013; Kaya & Ariöz, 2014; Altay et al., 2010; Kaya et al., 2010).

In this study, it is aimed to identify the burnout levels of nurses which prevent them from doing their business more efficiently and to examine the effects of demographic variables like age, tenure of office, education and marital status on burnout. That there hasn't been such a study utilizing CHAID analysis before was another factor in this study's rising.

2. Data and Methodology

2.1. Research Design

In this study, in compliance with its goal, relational screening model has been adopted which is a research model aimed at identifying whether or not there are any relationships between two or more variables, and the degree of this relationship if it exists.

2.2. Limitations of Research

The research results representing only the institution (in which the research applied) was accepted as the limitation of the research.

2.3. Universe and Sample

The nurses working in public hospitals within borders of central district of Denizli province comprise the universe of the study (N=530). When choosing the sample, convenience sampling method was adopted and research was conducted among 256 nurses accepting to participate in the study. Whether the number of sample is sufficient has been checked by the formula used in states where the number of people in target audience is known. Accordingly;

$$n = \frac{N t^2 p q}{d^2(N-1) + t^2 p q} = \frac{530.(1,96)^2 .0,50.0,50}{(0,05)^2 .(530-1)+(1,96)^2 .0,50.0,50} = \frac{509,012}{2,2829} = 223$$

N: Number of individuals in the target audience

n: Number of individuals included in the sample

p: Frequency of occurrence of the studied event (probability of occurrence)

q: Frequency of non-occurrence of the studied event (probability of non-occurrence)

t: The theoretical value found according to the t-table at a specific significance degree

d: Acceptable sampling error according to the occurrence frequency of the incident.

According to the obtained result the sampling size was decided to be adequate.

2.4. Data Collecting Tools

Personal Information Form: It is a questionnaire consisting of questions aimed at determining various demographic properties like age, level of education, marital status, income level and tenure of office.

In the research, Maslach Burnout Inventory was used to find out the burnout levels of nurses which had been developed by Maslach & Jackson (1981). The scale is composed of 3 dimensions and 22 items, namely emotional exhaustion (9 items), depersonalisation (5 items) and personal accomplishment (8 items). Each statement was assessed by means of 5-point Likert scale, namely 0. "Never", 1. "Very rarely", 2. "Sometimes", 3. "Usually" and 4. "Always". The ratings were assessed to be "high" if it is equal to or over 27, "average" if it is between 17-26, "low" if it is between 0-16 for emotional exhaustion; "high" if it is equal to or over 13, "average" if it is between 7-12, "low" if it is between 0-6 for depersonalisation; and "high" if it is between 0-31, "average" if it is between 32-38, "low" if it is equal to or over 39 for personal accomplishment. The scale has been put to the validity and reliability tests by being utilised at numerous researches (Ergin, 1992; Güneşen & Üstün, 2008; Demir et al., 2003; Helvacı & Turhan, 2013). In the study, the Cronbach Alpha values of subscales have been calculated as $\alpha=0.88$ for emotional exhaustion, $\alpha= 0.78$ for depersonalisation and $\alpha =0.80$ for personal accomplishment.

2.5. Data Analysis

In the study, CHAID (Chi-squared Automatic Interaction Detection) analysis was utilised to examine various demographic properties influencing nurses' burnout levels. CHAID Analysis is an explanatory method used in studies aimed at identifying the relationships between a dependent variable and several independent variables (Doğan & Özdamar, 2003, 393). It is a mixed statistical approach where cluster analysis and regression analysis are applied together (Kayri & Boysan, 2007, 136). According to this approach, the universe is steadily split into divergent subgroups or subdivisions to ensure that the intergroup variation of dependent variable is maximum and intragroup variation thereof is minimum, and the interaction between or combinations of variables are established (Doğan, 2003, 66). While the applicability of conventional regression analysis relies on the realisation of assumptions such as normality, linearity and homogeneity; the regression equation obtained within the scope of CHAID analysis doesn't rely on these assumptions. Because with a sound routing algorithm, normality and homogeneity of data distribution are provided by dividing the universe into stable nodes (Kayri & Boysan, 2007, 139). CHAID Analysis is a convenience-providing method since it can be implemented even when response variable is sequential, categorical or continuous; or the predictor variables are continuous or categorical. Another advantage of CHAID analysis is that it shows multidimensional relationships between independent variables, which explain dependent variable, via tree diagram; and thus, it enables researchers to interpret more easily (Dağdeviren et al., 2011, 71).

3. Findings and Discussion

3.1. Findings Regarding Demographic Properties

The distribution of nurses included in the study is as follows: Age of 26.7% of participants is between 18-25, that of 63.6% is between 26-35, and 9.7% of them are over 36. In terms of level of education 22.5% have medical vocational high school degree, 26.4% have Associate's degree, 44.2% have Bachelor's degree and 7% have master's degree. According to tenure of office 7.8% have worked for 0-5 years, 24.4% for 6-10 years, 2.7% for 11-15 years, 50% for 16-20 years and 15.1% for 21 years or over. While 31.4% of them find daily workload normal, 47.3% find it much and 21.3% find it too much. According to marital status, 36.4% are single and 63.6% are married. Additionally, 54.7% of the participants find his/her income adequate, 45.3% find inadequate.

3.2. Descriptive Statistics Regarding Burnout Scale Sub-dimensions

The means for participating nurses are demonstrated in Table 1 in general.

Table 1: Findings Regarding Mean and Standard Deviation

	Mean	Standard Deviation	Minimum	Maximum
Emotional Exhaustion	15.59	6.536	4	31
Depersonalisation	7.07	2.240	2	11
Personal Accomplishment	23.65	2.131	5	27

When we look into the general means in Table 1, it is established that the participant nurses have a low-level of burnout in terms of emotional exhaustion ($\bar{x}=15.59\pm 6.536$); an average level thereof in terms of depersonalisation ($\bar{x}=7.07\pm 2.240$); and a high level in terms of personal accomplishment ($\bar{x}=23.65\pm 2.131$). These findings are parallel with those of many studies in literature. In their study, Helvacı & Turhan (2013) found the mean of emotional exhaustion as $\bar{x}=17,0\pm 8,20$ (average); that of depersonalisation as $\bar{x}=5.7\pm 3.31$ (low), and that of personal accomplishment as $\bar{x}=20.9\pm 4.49$ (high). Jodas & Haddad (2009) in the study about the nurses in an emergency room of a university hospital ascertained that their emotional exhaustion level is "low", depersonalisation level is "average", and personal accomplishment level is "high". Ergin et al. (2009) found each sub-dimension ratings to be average in a research done on nurses working in internal clinics (for emotional exhaustion $\bar{x}=25.47\pm 10.99$; for depersonalisation $\bar{x}=7.60\pm 5.97$; and for personal accomplishment ($\bar{x}=33.80\pm 7.35$). In the study carried out by Güneşen & Üstün (2008) on nurses in a university hospital the mean of emotional exhaustion ratings

was found to be $\bar{x}=18.63\pm 6.74$ (average), that of depersonalisation $\bar{x}=4.83\pm 3.50$ (low), and that of personal accomplishment $\bar{x}=20.71\pm 3.67$ (high).

3.3. Findings of CHAID Analysis Made to Examine the Burnout Level in Terms of Some Demographic Variables

The tree diagram showing independent variables affecting the emotional exhaustion obtained as a result of CHAID Analysis is in Figure 1.

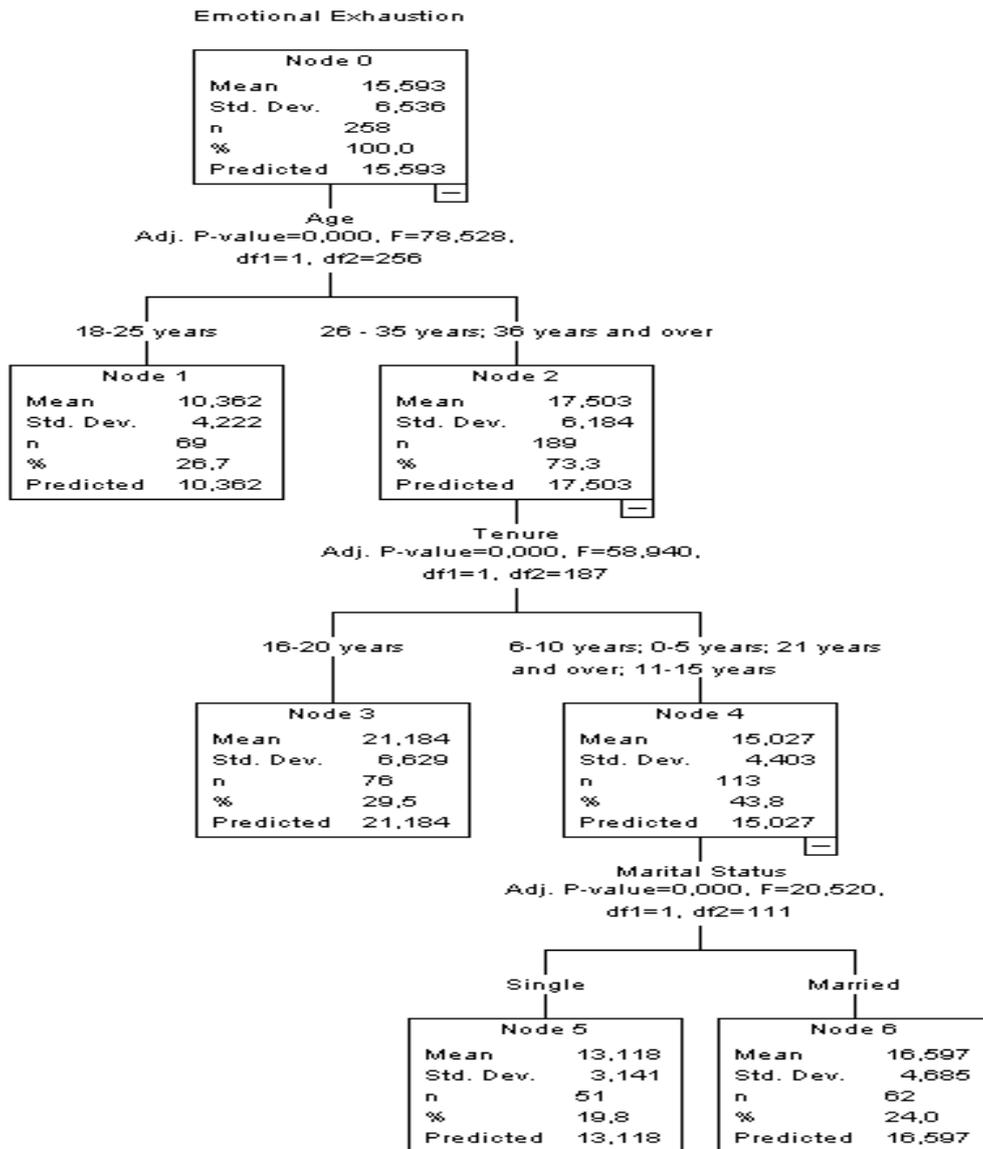


Figure 1: Tree Diagram for Independent Variables Affecting Emotional Exhaustion

When we look into Figure 1, it is apparent that emotional exhaustion is related to age, tenure of office and marital status. The most significant variable influencing emotional exhaustion is age ($F=78.528$, $p<0.001$). In literature it is suggested that inexperienced nurses are more prone to burnout than experienced ones. In the study they made on nurses working in a state hospital Kaya et al. (2010) emotional exhaustion decreases as the age increases and vice versa. Oehler et al. (1991) found out that young and inexperienced nurses burn out faster. In this study, it has been ascertained that the mean of emotional exhaustion for the nurses between the ages of 18 and 25 ($\bar{x}=10.362\pm 4.222$) is lower than that for nurses at 26 and over ($\bar{x}=17.503\pm 6.184$). It, therefore, is possible to suggest that emotional exhaustion level increases for nurses as they get older. This result is believed to have stemmed from the fact that most of the respondents are comprised of employees at 26 and over. In addition, another reason for burnout could be that the young nurses starting to work with some expectations can't find what they have expected because of lack of modification in working conditions.

Another significant variable influencing emotional exhaustion is tenure of office ($F=58.940$, $p<0.001$). It is seen that the mean of emotional exhaustion level of the nurses with a tenure of office of 16-20 years ($\bar{x}=21.184\pm 6.629$) is higher than the ones with a tenure of office fewer than 15 years and over 21 years ($\bar{x}=15.027\pm 4.403$). A similar finding was found by Ergin et al. (2009) in the study conducted on nurses working in internal clinics. According to this study, the mean of emotional exhaustion for the nurses who have worked for 9 or more years is higher than those who have worked for 8 or fewer years.

Moreover in the study, it has been observed that emotional exhaustion for the nurses with tenure of office fewer than 15 or over 21 is affected by their marital status ($F=20.520$, $p<0.001$). In literature it is suggested that the single nurses are more liable to burnout phenomenon than the married ones (Maslach et al., 2001, 410). In this study, it has been determined that married nurses ($\bar{x}=16.597\pm 4.685$) suffer from emotional exhaustion more than the single ones ($\bar{x}=13.118\pm 3.141$). A similar finding was obtained in the study made on nurses working in emergency rooms by Kebapçı & Akyolcu (2011). According to this, when emotional exhaustion means were contrasted, it is higher for the married ones than the single ones.

The tree diagram for independent variables affecting depersonalisation which is a sub-dimension of burnout is shown in Figure 2.

It has been found that the depersonalisation levels of nurses are related to independent variables like daily workload, marital status and level of education. Accordingly the most important factor in the depersonalisation of the nurses is daily workload ($F=19.942$, $p<0.001$). The mean of depersonalisation for the

nurses finding daily workload much or too much ($\bar{x}=7.480\pm 2.324$) is higher than the nurses finding it normal ($\bar{x}=6.185\pm 1.754$). Intense working increases nurses' occupational experience, whereas it can be considered to increase depersonalisation by transforming nurses into apathetic individuals who don't take others' needs into consideration, don't value their feelings and start to behave them like objects rather than human beings under the influence of mental and physical fatigue depending on reasons like inadequate rest and not sparing time to themselves.

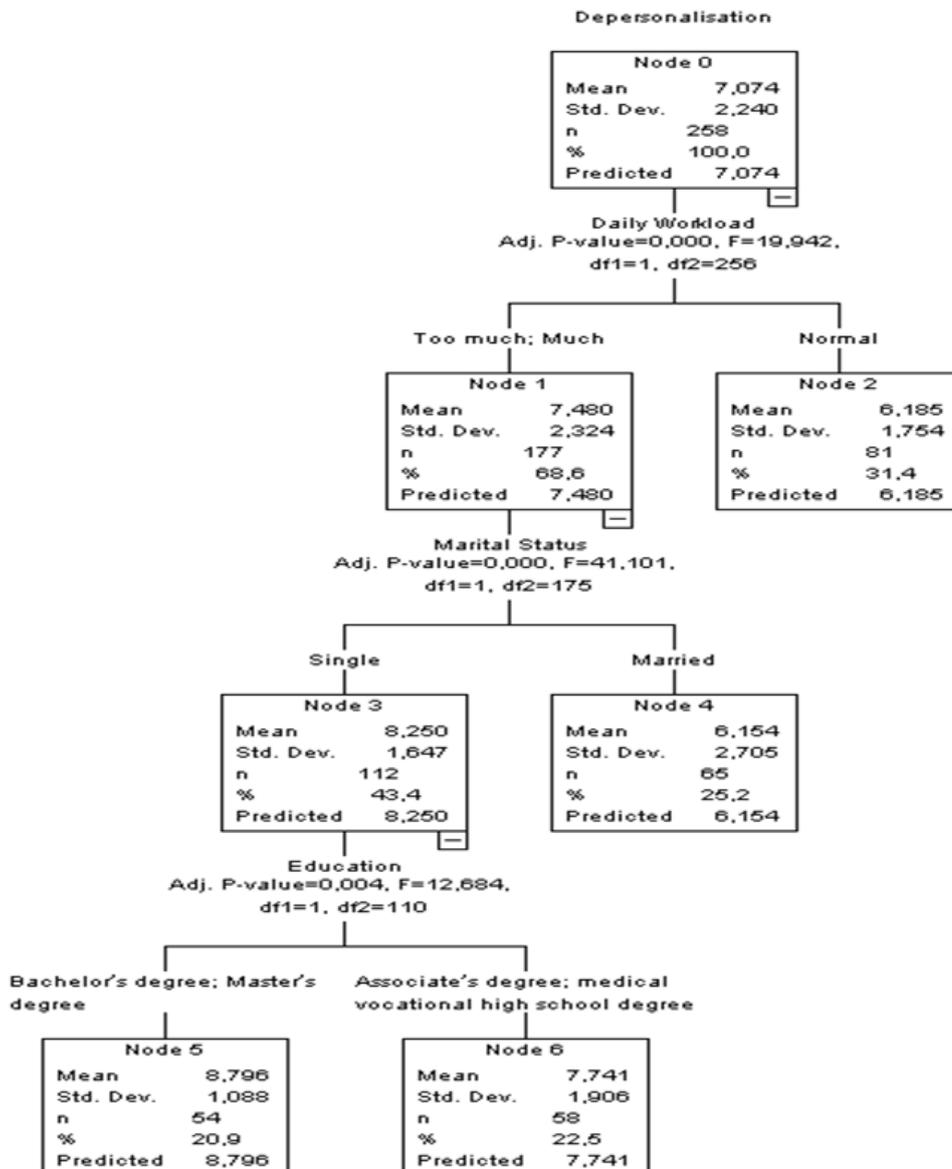


Figure 2: Tree Diagram for Independent Variables Affecting Depersonalisation

It is seen that the nurses having depersonalisation because of finding daily workload much/too much are affected by marital status ($F=41.101$, $p<0.001$). The mean for the single nurses finding workload much/too much ($\bar{x}=8.250\pm 1.647$) is higher than the married ones ($\bar{x}=6.154\pm 2.705$).

Also depersonalisation level of the single nurses finding workload much/too much is affected by level of education ($F=12.684$, $p<0.001$). Accordingly, it has been established that the depersonalisation mean of single nurses due to the fact that they find the workload much/too much is higher for the nurses who have accomplished Bachelor's or master's degree ($\bar{x}=8.796\pm 1.088$) than the ones who have Associate's or medical vocational high school degree ($\bar{x}=7.741\pm 1.906$). This finding is parallel with various research findings in the literature. In the study by Helvacı & Turhan (2013) on health care workers, the depersonalisation mean for nurses working for over 50 hours is higher than the ones working for fewer than 50 hours; and that for the single is higher than the married; that for the ones with master's degree is higher than the ones with Bachelor's or lower degree.

The tree diagram including the independent variables affecting personal accomplishment, one of the sub-dimensions of burnout is shown in Figure 3.

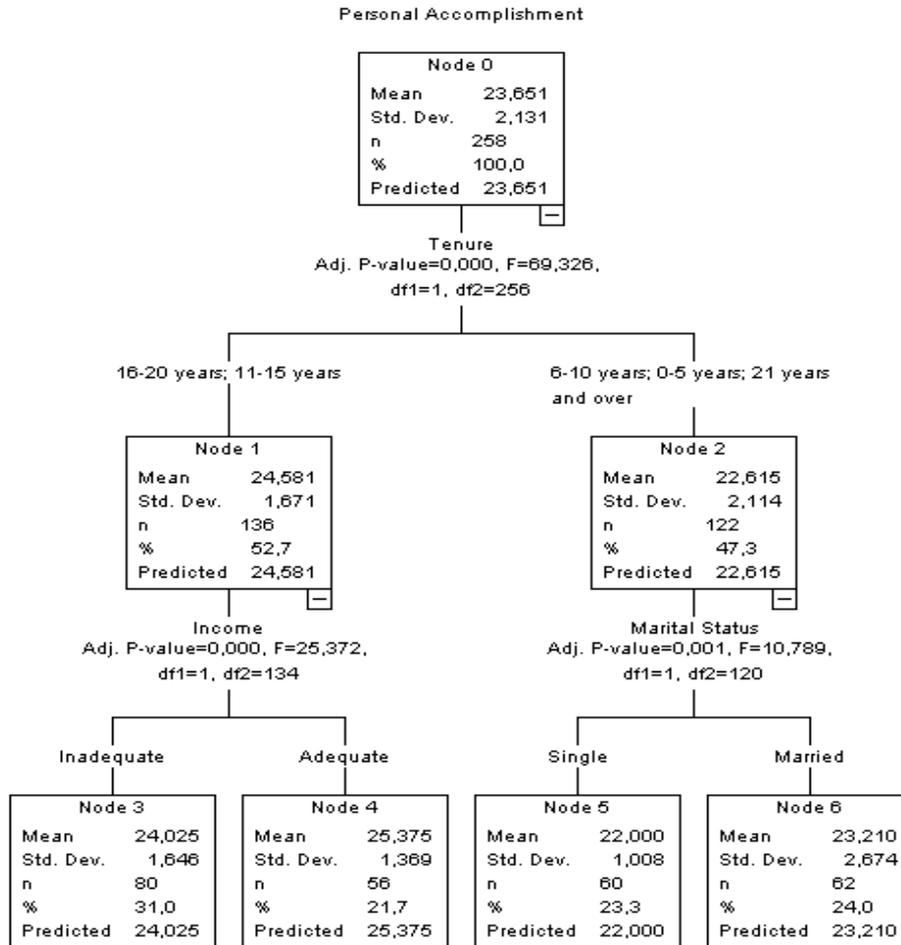


Figure 3: Tree Diagram for Independent Variables Affecting Personal Accomplishment

As indicated in Figure 3, the independent variables relating the personal accomplishment levels of the participant nurses are tenure of office, income level and marital status. The independent variable which has the most important effect among these is tenure of office ($F=69.326$, $p<0.001$). Personal accomplishment mean for nurses with tenure of office of 0-5 years, 6-10 years and 21 years and over ($\bar{x}=22.615\pm 2.114$) has been found to be lower than the nurses with tenure of office of 11-15 years and 16-20 years ($\bar{x}=24.581\pm 1.671$). This result complies with the literature. Demir et al. (2003) suggest that as tenure of office increases, personal accomplishment of nurses increase as well. Depending on tenure of office, that their jobs don't mean anything to the experienced nurses or that they see they cannot change a thing cause them to feel themselves invaluable and start to question their professional competencies as a result of considering their

contribution and roles are of no importance (Helvacı & Turhan, 2013, 60; Güneşen & Üstün, 2008, 55).

While the personal accomplishment level of the nurses with tenures of office of 0-5 years, 6-10 years and 21 years and over is affected by marital status ($F=10.789$, $p<0.001$), that of the nurses with tenures of office of 11-15 years and 16-20 years is affected by income level ($F=25.372$, $p<0.001$). It has been found that the personal accomplishment mean for nurses with tenures of offices of 0-5 years, 6-10 years and 21 years and over is higher for the married ones ($\bar{x}=23.210\pm 2.674$) in comparison to the single ones ($\bar{x}=22.000\pm 1.008$). A parallel result was obtained by Altay and friends (2010) in the study conducted on the nurses working in a university hospital. According to this study, it was determined that the married nurses have a higher personal accomplishment mean than the single ones. However, statistically, this difference wasn't significant. Among the nurses with tenures of office of 11-15 years and 16-20 years the personal accomplishment mean of the ones who find their income level adequate ($\bar{x}=25.375\pm 1.369$) has been found out to be higher than the ones who find their income level inadequate ($\bar{x}=24.025\pm 1.646$). This complies with the literature. In the study by Beaver and friends (1986), they established that as the monthly income rises, so does the personal accomplishment level of the nurses (cited by Demir, 2004, 11). Again Demir et al. (2003) in the study in which they examined the factors in nurses' burnout in work and private lives, they ascertained that personal accomplishment mean of the nurses who don't face economic troubles is higher than the ones who go through economic challenges.

4. Conclusion

As a result when we look into the burnout scale means of nurses who accepted to participate in the study, it has been determined that they have low emotional exhaustion, average depersonalisation and high decrease in personal accomplishment. Furthermore, it has been established that the burnout levels in question are affected by the demographic properties of respondents, namely age, marital status, tenure of office, daily workload, education and income level.

When we address each sub-dimension separately the determinations are as follows: Firstly, in terms of emotional exhaustion, the nurses at 26 or over have more emotional exhaustion than the ones under 26. Among the nurses at 26 or over, the ones with tenure of office of 16-20 years have more emotional exhaustion than the ones with tenure of office fewer than 15 and over 21. And among the nurses who have worked for fewer than 15 years or more than 21 years, the married ones have more emotional exhaustion than the single ones. Secondly, in terms of depersonalisation, the nurses who find the workload much have more depersonalisation than the ones who find normal. Among the ones who find it much, the single ones have more depersonalisation than the married ones.

Among the single nurses, the ones who have accomplished Bachelor's or Master's degree have more depersonalisation than the ones who have Associate's or medical vocational high school degree. Ultimately, in terms of personal accomplishment, it has been ascertained that the nurses with tenure of office of 11-20 years' experience more decrease in personal accomplishment than the ones who have worked for fewer than 10 years and more than 21 years. And among the nurses with tenure of office of 11-20 years, the ones who find the occupation's economic income adequate experience higher decrease in personal accomplishment in comparison with the ones who find it inadequate. Among the nurses with tenures of office fewer than 10 years and more than 21 years, the married ones experience more personal accomplishment than the single ones.

In line with these findings we could suggest;

- The state of burnout, which may be regarded as a serious obstacle to nurses' doing their job correctly and accurately, should be under periodical examination.
- Vocational training subjects should be focused on.
- In order to meet the expectations of elderly and occupationally experienced nurses literally, the working conditions of their units should be improved.
- To be able to balance the workload, more staff should be employed.
- Appropriate conditions should be provided for the married nurses to spend more time with their families.

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