**Title: High resilience leads to better work performance in nurses: Evidence from <mark>South Asia</mark>**

**Abstract**

**Background:** Resilience is a developable and teachable skill which helps to recover from adversities and continue functioning above the norm. Though combating negative effects at work such as burnout is widely researched, harnessing positive organizational effects like work performance through resilience is yet to be well-established.

**Aim**: To find-out how resilience level is related to work performance of nurses

**Methods:** Cross-sectional study enrolled 230 nurses from Sri Lanka. The level of resilience at work and performance were assessed using culturally adapted and validated tools. How each resilience subscale predicted the nursing performance was assessed using bivariate correlation and linear regression analysis using ordinary least squares method.

**Results:** The total resilience scale score demonstrated significant and strong positive correlations with all sub domains of nursing performance, as well as with overall performance ($p<0.05$). In linear regression model, six out of seven subscales in resilience scale predicted 70.5% of variance of work performance.

**Conclusions:** Higher resilience level at work is associated with better working performance among nurses.

**Implications for nursing management**: Nursing profession is well-known to be of highly stressful and fostering resilience would be extremely useful as an investment to combat such negative effects, while yielding positive organizational benefits such as better work performance.

**Key words:** Resilience, Work performance, stress, Nurses, Sri Lanka

**Introduction**

Nursing, which is considered as one of the oldest professions in the world, forms the backbone of health care systems, being the first point of contact for patients. They constitute the bulk of the human workforce in health-related institutions in most countries (Institute of Medicine-United States, 2011; Rolewicz & Palmer, 2019; World Health Organization, 2018). Their job is associated with numerous stressors on a constant basis such as time pressure, work load, and multiple roles complicated by human pain and distress, with no chance for error (McCann et al., 2013). This working environment is very conducive for nurses to be easily stressed out which would reflect in poor nursing performance. The ill health of care providers in health, results in an immense burden to health financial systems and patient care quality (Wei et al., 2019). The programmes designed to alleviate the effects of chronic stress among nurses (Henry, 2014; Nowrouzi et al., 2015), have a limited role in preventing the occurrence of such and enhancing performance.

In this backdrop, 'resilience', has emerged globally as a potential means of preventing stress and burnout at work (Grant & Kinman, 2014, Luthans, et al., 2007; Maddi & Khosabha, 2005; McCann et al., 2013; McLarnon & Rothstein., 2013; Mealer et al., 2012; Warner & April, 2012). Windle (2011), following a thorough conceptual analysis, defines resilience as "The process of effectively negotiating, adapting and managing significant sources of stress or trauma. It encompasses a person's ability to 'bounce back' or recover from stressors by adapting to stressful circumstances, not becoming ill despite significant adversity as well as functioning above the norm in spite of stressful circumstances or hardships". Though, this phenomenon was viewed initially as a fixed and stable trait that is not modifiable (Rutter, 1985), it has later been conceptualized as a more dynamic process that is developable and teachable (Winwood & Mc Ewan, 2013). This 'dynamicity' of resilience has increased its potential applicability in workplace cultures, for preventing the negative outcomes related to work environments.

During last few years, evidence has increasingly accumulated on the impact of work resilience on reducing the negative outcomes of workplace, such as stress, burnout, depression and anxiety (Gito, Ihara & Ogata, 2013; Mak & Wong, 2011; Mealer et al., 2012). However, only a limited number of studies were found in the literature, which investigated the association between high resilience and positive outcomes including better work performance, job satisfaction and low absenteeism (Brown, 2016; Luthans, Avey, Avolio & Peterson 2010; Kappagoda, Othman & Alwis, 2014). Of these, Kappagoda et al (2014) and Luthans et al (2014) have used a tool which assessed a broader concept called 'psychological capital' (Psy Cap), of which

resilience was one of the four sub-elements. Consequently, resilience levels were measured with only a few items. Brown (2016), used the Connor Davidson scale of resilience which measured general resilience level rather than work specific resilience. Therefore, strong evidence is lacking for the potential use of high resilience levels at work for harnessing the positive outcomes, such as work performance, satisfaction of the client/ service recipients and improvement in work relationships with the colleagues.

Further, Luthans et al (2010) have looked at the association between resilience and work performance in a sample of management students and engineers and technicians from a manufacturing firm, while Kappagoda et al (2014) studied the employees of the banking sector all of which have minimal human contact at work and differ very much from the nursing sector. Nursing, being a more demanding humane job with 100% human contact, may produce different results. Wei et al (2019) states that "Resilience in nurses is a skill that they can learn and possess to survive and thrive in the face of adversities at work". In concurrence, Brown (2016) in a sample of 535 staff nurses from Australia elicited a significant positive correlation of resilience with job satisfaction.  It is therefore imperative to explore further, the impact of resilience on the work performance of nurses. Such evidence would make most health administrators more interested in investing on fostering resilience among its own work force, specially the nurses which is the key for ensuring quality assurance of health care services.

Sri Lanka being a South Asian country, has the best health indicators in the region, owing to a committed medical and nursing staff (World Bank, 2018). However, nursing is a substantially challenging and a demanding job, especially in developing countries as that they are working under extremely resource poor, understaffed conditions with a high patient turn over (WHO, 2010). Comparable with these indicators, burnout is shown to be a substantial problem worldwide, which is 26.2% in Sri Lanka (Samaranayake, 2010, Wei et al, 2019). Thus, providing evidence on resilience as a potential pathway to improve work performance by minimizing the negative effects of stress related is deemed timely in South Asia. To this end, this study aimed at assessing the relationship between resilience level at work, measured using  translated and  validated tools specifically designed to measure resilience at work and nursing performance in Sri Lanka.  Our hypothesis is that higher the level of resilience at work, the better the work performance would be, among the nurses in Sri Lanka.  The study findings are applicable to all developing countries, in which similar work settings exist for nurses. The evidence would enable investing on low cost tools as well as interventions on developing resilience at work in nurses.

**Methods**

A cross-sectional analytical study conducted by recruiting the nurses representing secondary and tertiary care hospitals in Colombo district, Sri Lanka. Being the commercial capital of the country, Colombo District accommodates the largest proportion of human resource in health care for any given staff category (Ministry of Health, 2014), including for nurses (7436/31,854 (23%) registered nurses). Further, the hospitals selected comprised, Divisional Hospital-B level (minimum bed strength-50) and above up to teaching hospitals, which provide care including specialist services for in-ward patients as well as out-patients, while accommodating 6734 nurses (91% of nurses of Colombo District).

The sample consisted of permanently employed nurses who had been in service for over six months. Executive grade nurses, nurses assigned fulltime for tasks other than general nursing care such as at reception, information desk, etc. and those on long-term leave were excluded. The sample size calculated, as per the formula by Hulley et al (2013) to detect the smallest statistically significant correlation coefficient that was likely to be detected between resilience at work and work performance at significance level (type I error: $Z_{\alpha/2}$) of 1% (2.58); power of study ($Z_{1-\beta}$) at 90% (1.28); an estimated correlation (r) between job performance and resilience of 0.57 (Kappagoda et al., 2014); and non-response rate of 20%. The minimal sample size required was 135 nurses. A sub-sample of the main study conducted in the same setting to assess the level of resilience, comprising 230 nurses were included for this component. The main study sample selected using multi-stage stratified, cluster sampling based on probability proportionate to the size (Walpita, 2016; Walpita & Arambepola, 2017). In the first stage, the nurses were divided into eight strata according to their work unit (e.g. medical units, surgical units, intensive care unit etc.). In the next stage clusters of four nurses were randomly selected. For this, a cluster was defined as 'a ward identified by a separate number or a unit such as primary care unit or blood bank', while the number of clusters within each stratum was determined proportionate to the nurse population within each stratum. To achieve the necessitated sample size for this study component, one nurse was randomly selected from each of the 230 clusters identified for the main study.

"Resilience at Work- Sinhala Scale (RAW-S)" consisted of 24 items within seven sub-scales was used to measure resilience level. The original RAW scale, which had been developed in English by Winwood & McEwan (2013) was translated to Sinhala- the local language by forward-back translation method. It was culturally adapted and validated for Sri Lanka using robust validation techniques, with permission from the original authors (Walpita. 2016). In the validation process, the original seven-factor model emerged

well from RAW-S data during exploratory factor analysis. Its validity was further established by confirmatory factor analysis (model chi-square 608.13, Standardized Root Mean square Residual: 0.067, Comparative Fit Index: 0.923, Root Mean Square Error of Approximation: 0.066). The reliability was also proven to be satisfactory (Cronbach's alpha value=0.88; test-retest reliability coefficient=0.81).

The work performance of nurses was measured using 6-Dimension (6-D) Nursing Performance Scale, which had been developed by Schwirian (1978) and widely used around the world as a valid and reliable tool to measure nursing performance (Gardner, 1992; McCloskey & McCain, 1988; Redd & Alexander, 1997). This tool had been further validated for Sri Lankan nurses in teaching hospitals (Samaranayake, 2010), showing high validity and reliability, and was adopted for this study. However, prior to its use, owing to the recent changes in the duty profile of Sri Lankan nurses, this scale was slightly modified and re-validated (Walpita, 2016). The final scale consisted of 49 items under 6 domains of work performance, namely leadership, planning/ evaluation, critical care, interpersonal communication, teaching/ collaboration and professional development.

The ethics clearance from ethics review committee of the Faculty of Medicine, Colombo, Sri Lanka as well as from ethics review boards of all the relevant hospitals was obtained for the study. The data collection was done by well-trained pre-intern medical officers. The eligible nurses were approached at end of day's duty (7 am, 1 pm or 7 pm shifts) when visiting the matron's office for signing off. After obtaining informed written consent, self-administered questionnaires were used to collect data, put into a sealed box upon completion. A data collector was personally allocated for each participant for any clarifications.

**Data analysis**

Data analysis performed with SPSS version 20 package. RAW-S scores were converted to standardized scores on a scale of 0-100. As suggested by previous researchers (Hughes & Rogers,2004; Samaranayake, 2010; Schwirian, 1978), scores for each dimension of the 6-D scale were calculated, taking into consideration only the items that were relevant for each NO. The association between RAW-S scores and 6D scale scores was analyzed using Spearman correlation coefficients ($r_s$), calculated for the total score as well as for scores within each RAW-S subscale and domains of nursing performance.

In order to identify how each RAW subscale predicted nursing performance, multiple linear regression modelling was carried out in stepwise approach using ordinary least squares method. Total score obtained for nursing performance was used as the dependent variable and resilience at work subscale scores as

independent variables. The probability for entering data was F<=0.05 while probability for removal was F=>0.10. Prior to modelling, whether the assumptions needed to carry out this analysis were satisfactorily met was assessed using several statistical indicators.

## Results

Two-hundred and thirteen nurses completed the questionnaire, amounting to a response rate of 92.6%. Their basic demographic characteristics are described in Table 1. Mean age was reported as 34.9 (SD=8.1) years, while females (95.3%) represented majority, which was compatible with the distribution of government sector nurses in Sri Lanka. Their nursing experience on average was 9.5 years (SD=8.0).

Figure 1 summarizes the distribution of total RAW-S scores, standardized to a total of 100, higher scores indicating higher resilience. The total score assumed a normal distribution (skewness= -0.55; Kolmogorov-Smirnov (K-S) statistics= 1.123; $p=0.16$), reporting a mean score of 69.2 (SD=9.6) and median of 70.14. However, the distribution of six out of the seven subscale scores of RAW-S did not assume normalcy ($p<0.05$).

Figure 2 summarizes the distribution of the nursing performance scores, with higher scores indicating better performance. The highest performance was seen in the domain leadership (mean score of 2.94) while all other domains performed almost equally (range=2.58 to 2.89). Total work performance scores were normally distributed among the nurses (skewness= -0.99; K-S= 1.23; $p= 0.06$), with mean score of 16.7 (SD=2.7) and median of 17.2. However, the distribution of scores within each domain did not assume normalcy (K-S test<0.005) for all six domains.

**Association between nursing performance and resilience at work**

Figure 3 shows a strong positive linear relationship of the resilience levels at work and performance of nurses, based on the RAW-S and 6-D total scores ($r_s=0.87$; $p<0.01$). Further, as shown in Table 2, RAW-S total scores correlated significantly with 6-D scores of each nursing domain, ranging from $r_s=0.6$ (education) to $r_s=0.89$ (leadership). Also, when individual RAW-S subscales were considered, all showed positive correlations with the six sub-domains of work performance, indicating that increasing levels of resilience at work was associated with increasing levels of nursing performance. The strength of these correlations varied from the smallest between 'Interacting cooperatively' and 'Education' ($r_s=0.25$) to the largest between 'Managing stress' and 'Leadership' ($r_s=0.68$).

Prediction of the nursing performance by RAW-S subscales was assessed in the study. The assumptions needed to carry out this analysis were satisfactorily met; random selection of the samples, normal distribution of the dependent variable, independent and dependent variables linearly related and the absence of high collinearity between the independent variables (De Souza & Junqueira, 2005). The histogram and K-S statistics (Z=1.23, p=0.06) of the dependent variable were checked for normality; scatter plots were observed for linear relationship of dependent and independent variables; while the correlation matrix was observed for high collinearity. The modeling process went up to six steps, of which the model six showed the lowest F value (84.35) and the highest adjusted $R^2$ (0.705), indicating the best model fit. It included six subscales on resilience at work namely 'Finding your calling', 'Living authentically', 'Maintaining perspective', 'Managing stress', 'Interacting cooperatively' and 'Staying healthy', predicting 70.5% of the variance of their nursing performance. Variation Inflation Factor [VIF] for the independent variables in the final model, ranged between 1.064-1.594, which was well within the recommended values to indicate not having multi-collinearity. The Durbin-Watson statistic was 1.505, indicating the data is not auto-correlated. For the final model ANOVA was statistically significant (F =84.35: p <0.01).

Table 3 shows the estimated effects of the independent variables (RAW-S sub scales) and their statistical significance. All six subscales of the RAW-S included in the model predicted nursing performance significantly, as shown by the parameter estimates at p<0.001 level. The effect sizes ranged from 0.028 to 0.057.

**Discussion**

This study aimed at exploring the association between resilience level and job performance of nurses in a South Asian country. The hypothesis formed was that, higher the level of resilience, the higher the work performance would be. There are several potential mechanisms suggested as to how this association is possible in the literature. One pathway is based on the concept that highly resilient individuals are more adaptable to changes using their creative skills and dealing with adversity more persistently, which results in better performance in constantly changing and challenging work environment (Luthans et al., 2007b). Kasparkova et al (2018), suggests that better work engagement rather than the job satisfaction, mediates the association between high resilience and better work performance quoting the results of his study on Czech workers in helping professions. This theory is further supported by Bakker and Demerouti (2008), who linked resilience to positive self-image, which in turn make workers more engaged leading to better

performance. given this theoretical background, it was assumed that if the association between high resilience and better performance was proven to exist in the SL setting, that it would be easier to draw the attention of management bodies to invest in developing resilience among nurses.

Though not a widely researched area yet, some researchers have recently attempted to conceptually link resilience with work performance in emerging research area of "positive organizational behavior" (Coutu, 2002; Sutcliffe and Vogus, 2003; Youssef & Luthans, 2005). Positive organizational behavior is defined as "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement" (Luthans et al., 2007b. p542), which is readily linked to the two variables under interest.

A cross-sectional analytical study design deemed suitable for analyzing the association between the two variables. A similar design has been adopted by Kappagoda et al. (2014) to study the impact of 'psychological capital' and performance among bankers, and by Samaranayake (2010) when studying the association between burnout and work performance of Nurses. However, the ideal study design to analyze this association would be an interventional study considering its superiority in establishing a temporal association and causality assessment, which was not possible within the available logistical grounds.

In psychological research, usually effect sizes are interpreted using Cohen's (1988) conventions (<.10 = weak or small association; 0.30-0.5= moderate correlation;>0.5= large correlation). Accordingly, our study indicated a strong positive correlation between resilience at work and work performance. The results of other similar studies (Kappagoda et al, 2014; Luthans et al, 2007; Nafei, 2015) were noted to be also in the same direction, but indicate less strong associations. The varying degrees of associations could be partly related to the nature of the job as well as different tools used to assess work performance and resilience. However, further exploratory studies are warranted to identify the jobs (including the type of 'job' within nursing) where greater degree of enhancement of work performance could be aimed at by improving resilience.

Resilience at work showed strong associations individually with all six domains of nursing performance, in varying strengths. Domains Leadership and planning elicited the strongest association, while both these domains depict the managerial skills in addition to technical nursing skills. In line with the findings,

Tyczkowski et al (2015) describing the leadership styles of nurse managers have also stressed the importance of nurse resilience in managerial success. The fact that six out of the seven subscales of the RAW scale (except 'building networks') accounted for nearly 70% of the variance of work performance is important as the RAW scale specifically comprises of developable and teachable elements of resilience (Winwood & McEwan, 2013). This gives us an indication as to how a resilience building programme aiming at improving work performance among nurses, should be shaped. Compared to other interventions which involve skilled personnel (e.g. counselling) and drug treatment (e.g. for burnout, depression), developing resilience to improve work performance will serve as a cost-effective method especially in developing countries as in South Asia.

The 'building networks' subscale which failed to show a significant predicting effect, consisted of two items "I have friends at work I can rely on to support me when I need it" and "I have a strong and reliable network of supportive colleagues at work", both of which seem to be important elements to predict performance. Galer, Vriesendrop & Ellis (2005) also stress that "when people are in a supportive environment they strive to perform" (p.51). A possible explanation for a negative result would be the reduction of predictive validity due to a lesser number of items in this subscale, as Diamantopoulos et al (2012) states that multi-item scales to show their superiority over single items when considered predictive validity.

The evidence generated from this study on resilience strongly correlating and predicting the work performance of NOs has several implications in Sri Lanka as well as globally. The resilience is no more considered as a fixed trait but a developable and teachable characteristic (Windle, 2011). Therefore, as most of the healthcare systems in the world strive to provide good quality health care to their citizens, resilience at work is one of the attributes that can effectively be utilized to achieve it. It has dual benefits; preventing the negative outcomes of work stress such as burn out (Gito, Ihara & Ogata, 2013; Mak & Wong, 2011; Mealer et al., 2012) and at the same time harnessing the positive outcomes. The RAW scale can be used as a tool to identify the at-risk nurses in this regard or in quantifying the hospital services and quality of nurse training. In further support, costing studies are recommended to assess the long-term financial gains of resilience in terms of the positive outcome such as less absenteeism, quality service, reduced turn over, low rate of accidents and injuries all coupled with higher performance.

**Limitations**

There are some limitations in the current study. The cross sectional design does not allow to make any conclusions on a causal relationship between high resilience and better work performance. Further, the study looked at the unadjusted association between the two variables, therefore the possible confounding due to other demographic and job related variables cannot be excluded. This limits the generalizability of the results. The other main limitation is that the study used self-rated work performance which may lead to overestimations.

## Conclusions and Implications for Nursing Management

The current study has clearly shown that there is a strong positive correlation between resilience and work performance. Therefore, in addition to its impact to recover from negative effects of work stress, resilient nurses actually seem to thrive more and develop, in the presence of adversities contributing more to their organizations. This evidence is of particular use to nurse managers to instil resilience development programmes in their work settings and to advocate health administrators to invest further in this regard. Nurse managers themselves also seem to benefit more from developing resilience, as high resilience was strongly associated with better performance in managerial tasks related areas such as planning and leadership.

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**Table 1: Socio-demographic Characteristics of the participated Nursing Officers (N=213)**

| Socio demographic characteristic | Number | % |
|---|---|---|
| **Age (in completed years)** | | |
| 26-30 | 79 | 37.1 |
| 31-35 | 65 | 30.5 |
| 36-40 | 22 | 10.3 |
| 41-45 | 15 | 7.0 |
| 46-50 | 22 | 10.3 |
| 51-55 | 4 | 1.9 |
| 56-60 | 6 | 2.8 |
| **Sex** | | |
| Female | 203 | 95.3 |
| Male | 10 | 4.7 |
| **Type of work unit** | | |
| Medical units | 47 | 22.1 |
| Surgical units | 28 | 13.1 |
| Paediatric units | 17 | 8.0 |
| Accident & Emergency units | 19 | 8.9 |
| OPD and clinics | 22 | 10.3 |
| Obstetrics & Gynaecology units | 17 | 8.0 |

| | | |
|---|---|---|
| Theatre/Intensive Care Unit | 53 | 24.9 |
| Psychiatric | 10 | 4.7 |
| **Nursing grade *** | | |
| Grade 111 | 89 | 41.8 |
| Grade 11 | 92 | 43.2 |
| Grade 1 | 27 | 12.7 |
| Supra grade | 5 | 2.3 |
| **Total nursing experience (in years)** | | |
| 0.5-5 | 79 | 37.1 |
| 6-10 | 60 | 28.2 |
| 11-15 | 31 | 14.6 |
| 16-20 | 15 | 7.0 |
| 21-25 | 12 | 5.6 |
| 26-30 | 13 | 6.1 |
| 31-35 | 2 | 0.9 |
| 36-40 | 1 | 0.5 |
| **Total** | **213** | **100.0** |

*Refers to the appointment grade of Nurses offered by the Ministry of health depending on the qualifications and seniority. The hierarchy of grading from lowest to highest is grade 111, 11, 1 and supra-grade.

*Table 2: Correlation Coefficients between Nursing Performance Domain Scores and the Scores of RAW-S and Subscales*

| Nursing performance domain | Resilience at work sub scales [†] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | FC | LA | MP | MS | IC | BN | SH | Total |
| Education | 0.37[‡] | 0.36[‡] | 0.36[‡] | 0.47[‡] | 0.25[‡] | 0.27[‡] | 0.36[‡] | 0.60[‡] |
| Planning | 0.47[‡] | 0.51[‡] | 0.51[‡] | 0.62[‡] | 0.30[‡] | 0.36[‡] | 0.51[‡] | 0.80[‡] |
| Critical care | 0.46[‡] | 0.40[‡] | 0.48[‡] | 0.54[‡] | 0.27[‡] | 0.33[‡] | 0.42[‡] | 0.72[‡] |
| Leadership | 0.52[‡] | 0.54[‡] | 0.62[‡] | 0.68[‡] | 0.34[‡] | 0.42[‡] | 0.50[‡] | 0.89[‡] |
| Interpersonal relationship | 0.38[‡] | 0.37[‡] | 0.54[‡] | 0.50[‡] | 0.29[‡] | 0.37[‡] | 0.43[‡] | 0.72[‡] |
| Professional development | 0.37[‡] | 0.46[‡] | 0.56[‡] | 0.56[‡] | 0.27[‡] | 0.34[‡] | 0.37[‡] | 0.74[‡] |
| Total 6-D | 0.49[‡] | 0.51[‡] | 0.59[‡] | 0.65[‡] | 0.34[‡] | 0.40[‡] | 0.49[‡] | 0.87[‡] |

[†] FC = Finding your Calling, LA = Living Authentically, MP = Maintaining Perspective, MS = Managing Stress, IC = Interacting Cooperatively, SH = Staying Healthy, BN = Building Networks

[‡] Spearman ($r_s$) correlation coefficients which were all significant at 0.01 level

*Table 3: Parameter estimates and the significance of the best fitting Multiple Linear Regression Model to predict the Total Nursing Performance by Subscale Scores of Resilience at Work*

| Independent variable † | Unstandardized coefficients | | t | Significance P value | 95% CI for B | |
|---|---|---|---|---|---|---|
| | Beta | SE | | | Lower | Upper |
| Subscale score MS | 0.042 | 0.009 | 4.935 | <0.01 | 0.025 | 0.059 |
| Subscale score MP | 0.057 | 0.007 | 7.668 | <0.01 | 0.042 | 0.072 |
| Subscale score LA | 0.039 | 0.010 | 3.900 | <0.01 | 0.019 | 0.059 |
| Subscale score IC | 0.028 | 0.005 | 5.366 | <0.01 | 0.018 | 0.038 |
| Subscale score SH | 0.029 | 0.006 | 4.919 | <0.01 | 0.017 | 0.041 |
| Subscale score FC | 0.038 | 0.009 | 4.351 | <0.01 | .021 | .055 |

† FC = Finding your Calling, LA = Living Authentically, MP = Maintaining Perspective, MS = Managing Stress, IC = Interacting Cooperatively, SH = Staying Healthy, BN = Building Networks

Dependent Variable: Total work performance score

Beta= regression coefficient

SE= standard error of beta

**Figure legends:**

**Figure 1: The distribution of total Resilience at Work Scale (Sinhala version)- [RAW-S] scores**

**Figure 2: The distribution of total scores of 6-Dimension Nursing performance assessment scale**

**Figure 3: The Association between the Resilience at Work (RAW-S) Scores (X- axis) and 6-D Total Nursing Performance Score (Y-axis)**