

The Nexus between Psychological Needs Satisfaction and Happiness at Work amongst Nurses in Public Hospitals in Uganda. An Indirect Relationship Test of Flow Experience

This paper explores the mediating role of flow experience in the relationship between psychological needs satisfaction and happiness at the workplace, specifically within the context of public hospitals in Uganda. A cross-sectional study was conducted, involving a sample of 800 professional nurses. The findings reveal that flow experience partially mediates the connection between psychological needs satisfaction and workplace happiness. Additionally, a significant and positive relationship was observed between psychological needs satisfaction and happiness at the workplace. The study underscores the importance of intrinsic involvement in work for psychological needs satisfaction to influence the level of workplace happiness among professional workers. Limitations include the use of a mono research methodological approach, suggesting opportunities for future research through interviews to triangulate findings. Practical Implications: The results suggest that hospital leaders should strive to establish a balance between psychological needs satisfaction and flow experience to enhance happiness among nurses in Uganda's public health sector. By recognizing and addressing the psychological needs of healthcare professionals, hospital heads can contribute to a more positive work environment and, consequently, higher levels of workplace happiness. Social Implications: The paper recommends that human resource managers in public hospitals, as well as practitioners and researchers, acknowledge the positive correlation between job satisfaction and productivity, happiness, and success among professional nurses. Recognizing the significance of employee well-being can lead to increased productivity, job satisfaction, and overall success within the healthcare sector. Originality/ Value: This study contributes to the limited body of research focusing on the interplay between psychological needs satisfaction, happiness at work, and the mediating role of flow experience within Uganda's health sector. By shedding light on these dynamics, the research offers valuable insights for healthcare practitioners, policymakers, and researchers seeking to enhance the well-being of professional nurses and, consequently, the effectiveness of health services.

Keywords: Psychological needs satisfaction, happiness at work, professional nurses, health services, flow experience, positive emotions.

Introduction

Employee happiness is intricately linked to a sense of fulfillment and contentment in the workplace, fostering attention, competence, autonomy, and sustained positive emotions (Ilies et al., 2017; Waterschoot et al., 2020). Amidst the post-COVID-19 organizational turbulence, particularly in the developing world, the significance of workplace happiness has become more pronounced (Kawalya et al., 2019; Yu et al., 2018, Onaolapo, Olaore, Udofia & Adenigba 2021). However, the current state of nurses' happiness in Ugandan hospitals presents a

contrasting narrative. Nurses in Uganda face a myriad of challenges, including inadequate leadership support, limited professional growth opportunities, exclusion from decision-making processes, insufficient protective equipment, low remuneration, and a lack of recognition, contributing to a pervasive sense of dissatisfaction and discontent (Kawalya et al., 2019; Yu et al., 2018).

Additionally, nurses grapple with work overload, scarce accommodation options, expensive rentals, and irregular meal patterns due to demanding schedules. A brief literature review underscores the prevalence of stress among nurses, stemming from factors such as high patient-nurse ratios, working with less qualified staff, and insufficient resources (Kabunga & Okalo, 2021; Musimenta et al., 2022). These harsh conditions paint a grim picture of nurses' happiness in Ugandan government hospitals (Yu et al., 20180).

This study aims to explore the contributing factors to the limited happiness at work among nurses, specifically focusing on the roles of psychological needs satisfaction and flow experience. Nurses lament the lack of autonomy in decision-making, social alienation, and a perceived lack of competency due to limited opportunities for further studies. These factors contribute to psychological dissatisfaction, hindering their ability to find joy in their work (limited flow experience). Strikingly, despite extensive research on workplace happiness, none has delved into the unique context of Ugandan professional nurses, particularly examining the mediation role of flow experience in the relationship between psychological needs satisfaction and happiness (Kawalya et al., 2019; Yu et al., 2018).

Theoretical Framework

This study adopts the Self-Determination Theory (Ryan & Deci, 2000) to underpin its theoretical foundation. The theory posits that individuals are motivated from within, and when employees feel a sense of autonomy, competence, and relatedness, they are more likely to be creative, innovative, and experience job satisfaction. The absence of these feelings may limit opportunities for workplace happiness. Furthermore, the theory suggests that internally motivated employees are more likely to be immersed in their work, contributing to overall job satisfaction. The primary objectives of this paper are twofold: 1-To examine the relationship between psychological needs satisfaction, flow experience, and happiness at work among professional nurses. 2-To determine the mediating role of flow experience in the relationship between psychological needs satisfaction and happiness at the workplace.

In the subsequent sections, the paper will delve into the methodology, findings, and discussions, shedding light on the intricate dynamics of nurses' happiness in Uganda and the potential mediating influence of flow experience

Literature Review and Hypothesis Development

Theoretical Underpinnings

Happiness, as defined by Seligman (2002), comprises pleasure, engagement, and meaning. Drawing on the Self-Determination Theory (SDT) and the Psychology of Flow Theory (PsyFT), this study explores the mediating role of flow experience in the relationship between psychological needs satisfaction and workplace happiness. SDT emphasizes intrinsic motivation (Ryan & Deci, 2002), while PsyFT posits that flow occurs when individuals are deeply engaged in challenging, skill-suited activities (Csikszentmihalyi, 2005). Tim and Amy (2023) note that flow is more likely to occur in tasks that are intrinsically motivated.

Psychological Needs Satisfaction, Flow Experience, and Happiness at the Workplace

Existing literature suggests a link between psychological needs satisfaction and flow experience, particularly during intrinsically rewarding tasks. SDT proposes that individuals seek tasks aligning with competence, autonomy, and relatedness needs. Combining PsyFT and SDT offers a comprehensive understanding of flow (Deci & Ryan, 2000) and facilitates a nuanced exploration of workplace happiness (Csikszentmihalyi, 1997). Despite numerous studies on psychological needs and happiness in various countries, none have specifically addressed psychological needs satisfaction, flow experience, and workplace happiness among professional nurses.

The study posits that flow experience mediates the relationship between psychological needs satisfaction and workplace happiness. Both PsyFT and SDT highlight the role of positive emotions (Lyubomirsky et al., 2005; Seligman, 2002). Moreover, previous research has established the significance of psychological needs in workplace happiness, as unsatisfied needs lead to psychological and physical distress (Ryan & Deci, 2002). The study thus hypothesizes:

Hypotheses

H1: There is a positive relationship between psychological needs satisfaction and flow experience.

H2: There is a significant positive relationship between psychological needs satisfaction and happiness at the workplace.

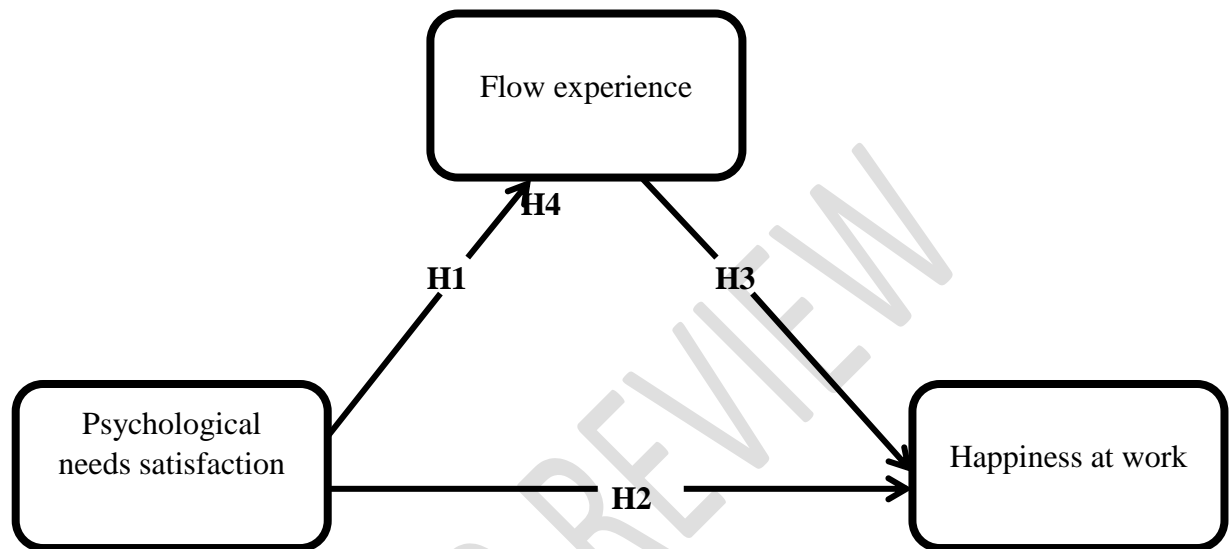
H3: There is a significant positive relationship between flow experience and happiness at the workplace.

H4: Flow experience mediates the relationship between psychological needs satisfaction and happiness at the workplace.

This conceptual framework integrates established theories, paving the way for an in-depth exploration of the interplay between psychological needs satisfaction, flow experience, and happiness at the workplace, particularly within the unique

context of professional nurses in Uganda. The hypotheses set the stage for empirical investigation, contributing valuable insights to the existing literature on workplace well-being.

Figure 1. Model arising out of this literature review, was developed to guide this study



Source: (Adapted from Deci, & Ryan, 2000; Seligman, 2002; Csikszentmihalyi,)

All the above mentioned relationship (as illustrated from figure 1 above) was met. The Automatic SPSS and AMOS software was used and the partial mediation the $p < 0.005$ and significance of the mediation effect of flow experience on the relationship between psychological needs satisfaction and happiness at the workplace. The results are summarized in figure 2.

Methods

Research Design, Population, Sample and Data Collection

This study adopted a cross-sectional research design. The study population was 900 professional nurses employed in public hospitals in Uganda. These professional nurses were selected from public hospitals in the 3 regions of Uganda. Uganda has four regions that is to say, central region, western, northern and eastern region. The study considered the central, western and northern regions because they have the highest numbers of public hospitals and professional nurses (Uganda Bureau of Statistics, 2016). Purposive sampling approach was employed to identify professional nurses who perform particular roles. All professional nurses were considered for the study and thus given questionnaires. The data collection exercise was conducted between January and May 2020. The questionnaires were distributed to the participants by the authors with assistance from research assistants. In the process of recruiting research assistants, emphasis

was put on their experience in data collection. The research assistants first underwent a two days training on the research topic and on data collection process. The research assistants were given hard copies of printed questionnaires, lists of hospitals to visit and the respondents. The research assistants were under supervision of the authors of this work. Each respondent was given a questionnaire to complete. Because of the nature of hospital operations, the participants could not complete the questionnaire in a single day and therefore were given ample time to complete the questionnaire. After distributing the questionnaires, some participants could ask for more time and the research assistant and in some cases the authors themselves, would go back to the participant to collect the completed questionnaires. Out of the 900 questionnaires distributed, 800 usable questionnaires were returned giving a response rate of 88.8%. The high response rate is due to the ample time given to the respondents and the several call-backs made. The sample characteristics are reported in Table 1 which is provided under the results section.

The Questionnaire, Reliability, Validity and Variables Measurements

The study used a questionnaire to enlist responses from respondents. The questionnaire was used because of its popularity in collecting data from a large sample. Further, the study used a questionnaire because the information supplied in it only passes through the hands of the data gatherers and thus confidentiality of information is maintained. Questionnaires can be in close answer format or open answer format. Given that this study aimed at calculating the mean ratings of statements designed on a six-point Likert scale, a closed answer format questionnaire was used. The questionnaire items were subjected to reliability tests and according to Cronbach (1951) and Hair et al., (2011), questionnaire items whose Cronbach alpha coefficient is 0.7 and above are considered reliable. For this study, the Cronbach alpha coefficients were 0.85, 0.83 and 0.84 for happiness at the workplace, flow experience and PsyCap respectively. For validity tests, questionnaires were given to experts in practice and various scholars. These made changes to the items and the questionnaire was revised accordingly. The questionnaire was given to the experts before going to the field. Therefore, the revised questionnaire was used for data collection and after data collection, Cronbach alpha was computed.

The dependent variable for this study is happiness at workplace which was operationalized in terms of meaningfulness, personal engagement, life satisfaction and positive emotions and this was in line with the works of Wörtler, Yperen, & Barelds, (2020). Flow experience was operationalized in terms of challenge and skill balance, concentration on the task and perceived control, and this was adopted from Csikszentmihalyi (2005). Psychological Needs Satisfaction (PsyNS) was operationalized in terms of relatedness, competence and autonomy, and this was in line with Deci and Ryan (2002). Response options for all the study variables were based on a six-point Likert scale ranging from 1=always without fail to 6= never less than a quarter of the time. The six-point scale was used to

avoid undecided responses from respondents' who might want to stick in the middle.

Data Management and Analysis

Data management was consistent with the recommendations by Field (2009). In particular, data were cleaned, coded and entered in a statistical package for social scientists data editor. The data was analyzed through Statistical Package for Social Scientists (SPSS) (Preacher, & Hayes, 2010). The authors of this study checked for missing values and also outliers which are data points (observations) that do not fit the trend shown by the remaining data (Hair, Anderson, & Tatham, 2012). The outliers bias the mean and inflate the standard deviation (Field, 2009). Field (2009) explains several options for dealing with outliers. These options include deleting the data from the person who contributed to the outlier, transforming the data or changing the score and this involves changing the score to be one unit above the next highest score in the data set, calculating what score would give rise to a z -score of 3.29 or using the mean plus two times the standard deviation (rather than three times the standard deviation) (Field, 2009). In this study, outliers were dealt with through calculating what score would give rise to a z -score of 3.29 (or perhaps 3) by rearranging the z -score equation in section 1.7.4, which gives us $X = (z \times s) + \bar{X}$. All this means is that we calculate the mean (\bar{X}) and standard deviation (s) of the data; we know that z is 3 (or 3.29 if you want to be exact) so we just add three times the standard deviation to the mean, and replace our outliers with that score. Because the questionnaires were checked by the authors and research assistants before leaving the respondents, there were no missing values in the data set. The assumptions of normality, the linearity of data and homogeneity of variance were found to be tenable. For example, the assumption of homogeneity of variance was tested for using the Levene's test and for the variables of interest; the Levene's test was not significant at $p > 0.05$.

According to Hair et al., (2010), structural equation model (SEM) involves constructing a model that combines the manifest and latent variables of all the global variables into a single model for decision making in AMOS through bootstrap. Hair et al., (2010) recommends that two competing model should be constructed to determine the model that is better for decision making. Additionally, Preacher & Hayes also recommends that the p -values should be used to determine the type of mediation effect that exist and for full mediation, the $p < 0.001$ and for partial mediation the $p < 0.005$. Thus, in order to establish the mediating role of flow experience in the relationship between psychological needs satisfaction and happiness at the workplace, a SEM model combining the independent variable (psychological needs satisfaction), mediator variable (flow experience), and dependent variable (happiness at the workplace) was constructed. (As illustrated in figure 2) The results are indicated in the next section.

Results

Sample Characteristics

The results from this study indicated that majority (40%) of the respondents were in the 31-40 age bracket as compared to those who were in the 20-30 age bracket. Besides, the results also showed that majority (77%) of the respondents were female as compared to the male who comprised of 23%. Furthermore, the results also revealed that most (51%) of the respondents had attained certificate level of education as compared to those with master's degree (0.8%). In addition, the results also indicated that most of the respondents (62%) were located in central region as compared to those from western region (9%). Similarly, the results also showed that most (64%) of the respondents were general nurses as compared to the registered nurses who constituted only 1.6%. More so, the results also showed that majority (62%) of the respondents were married as compared to 3.5% who were in a relationship.

Descriptive Statistics

Descriptive statistics were generated to show how the observed data fitted well to the model developed under this study. The results from the descriptive statistics analysis indicated that the variable of psychological needs satisfaction had a mean = 1.85 and standard deviation = 0.805, while flow experience had a mean = 1.77 and standard deviation = 0.703, and happiness at workplace at a mean = 1.71 and standard deviation = 0.803. The descriptive statistics results revealed that all the variables had their means not far from the standard deviation. This implies that the observed data fitted well to the model developed under this study since the means was far from the standard deviation as the measure of central tendency. Furthermore, statistics were also generated for the Skewness and Kurtosis. The rule of thumb is that the figures for both the Skewness and Kurtosis for normal data should range between -3.29 and 3.29 (Field, 2009). However, Tabachnick and Fidell (2007) suggest that Skewness and Kurtosis statistics for normal distribution should range between -2 to +2 although a more lenient +3 to -3 can also show normality. The results from this study showed that Skewness and Kurtosis statistics were achieved and tenable since they ranged between -2 to +2 as stipulated by Tabachnick and Fidell (2007). The results are indicated in Table 1.

Table 1. *Descriptive Statistics*

<i>Variables</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Skewness</i>		<i>Kurtosis</i>	
						<i>Stat</i>	<i>Std err</i>	<i>Stat</i>	<i>Std err</i>
Flow Exp.	800	1	6	1.77.02485	0.703	1.457	0.086	3.991	0.173
PsyNS	800	1	6	1.85.02849	0.805	1.213	0.086	2.444	0.173
Happiness	800	1	6	1.71.02840	0.803	2.001	0.086	1.458	0.173

Source: Primary data (by authors, Automatic SPSS software generated)

Correlation Analysis Results

This is the second stage of analysis. It uses Pearson correlations analysis (shown in Table 2) to explore the relationship between predictor and outcome variables. The Pearson correlation coefficient and parametric statistics, require interval data for both variables (Creswell, 2009; Field, 2009). This is to test its significance and normality. Parametric statistics assume that sample data comes from a population that follows a probability distribution based on a fixed set of parameters. The results here indicate that there is a significant positive relationship between psychological needs satisfaction and flow experience ($r=0.58^{**}$, $p\leq 0.01$). This means that a unit change in psychological needs satisfaction may lead to a 0.577 change in flow experience in the same direction. This finding supports H1 which states that there is a significant positive relationship between flow experience and happiness at the workplace.

The results further indicate that flow experience is positively and significantly associated with happiness at work ($r=0.60^{**}$, $p\leq 0.01$). This finding provides support for H2 which states that there is a significant positive relationship between flow experience and happiness at the workplace. Finally, psychological needs satisfaction and happiness at work are positively and significantly associated ($r=0.63^{**}$, $p\leq 0.01$). The implication of this finding is that an increase in the level of psychological needs satisfaction may lead to increased happiness at the workplace. This supports H3 which states that there is a significant positive relationship between psychological needs satisfaction and happiness at the workplace. The age which is treated as a control variable in this study was found to be negatively but significantly associated with happiness at work.

Table 2. Correlation Analysis

Variable	1	2	3	4
Psychological needs satisfaction (1)	1			
Flow experience (2)	.58 ^{**}	1		
Happiness at the workplace (3)	.60 ^{**}	.63 ^{**}	1	
Age (4)	-.10 ^{**}	-.11 ^{**}	-.14 ^{**}	1

Note. **. Correlation is significant at the 0.01 level (2-tailed). ** $p < .01$.

Source: Primary data (by authors. Automatic SPSS software generated)

In order to explore the relationships more robustly, Structural Equation Modeling (SEM) using AMOS 23 was undertaken. First, the measurement models for each of the latent variables (psychological needs satisfaction, flow experience and happiness at the workplace) were tested using Confirmatory Factor Analysis (CFA). All the models exhibited good fit for the data, thus meeting the criteria of Comparative Fit Index (CFI) and Incremental Fit Index (IFI) above .95, and Root Mean Square Error of Approximation (RMSEA) below .08. This allowed the latent variables to be used in a path model thereby simplifying interpretation (Fornell & Larcker, 1981).

Testing for mediation using SEM bootstrap approach

Measurement Model

The measurement models were constructed prior to testing of the mediation effect through SEM bootstrap approach in AMOS (Preacher, & Hayes, 2008; Zhao, Lynch, & Chen, 2010). The measurement model was constructed to show how the manifest variables are linked well to the latent global variable of psychological needs satisfaction. The results indicated good model fit indices with Chi-square = 23.287; Tucker-Lewis index (TLI) = 0.978; Comparative Fit Index (CFI) = 0.988; Incremental Fit Index (IFI) = 0.988; Root Mean Square Error of Approximation (RMSEA) = 0.049. Besides, another measurement model was constructed to show how the manifest variables link well to the latent global variable of flow experience. The results indicated a good model fit indices with Chi-square = 21.838; TLI = 0.893; CFI = 0.928; IFI = 0.9981; RMSEA = 0.098. Furthermore, measurement model for happiness at the workplace was constructed to show how the manifest variables linked it. The results also indicated a good model fit indices with Chi-square = 69.690; TLI = 0.964; CFI = 0.975; IFI = 0.975; RMSEA = 0.047 (See Table 3)

Table 3. *SEM competing models for non-mediation and mediation effects*

Variables	on-mediated model	Mediated model
Flow exp. ← PsyNS	.738***	0.679***
Happiness ← PsyNS	.691***	0.373***
Happiness ← Flow exp.	.399***	0.141***
CMIN	23.287	49.116
Degrees of freedom (Df)	8	24
Probability (P)	0.003	0.002
Incremental fit index (IFI)	0.988	0.986
Tucker-Lewis index (TLI)	0.978	0.979
Comparative fit index (CFI)	0.988	0.986
Normed fit index (NFI)	0.983	0.973
Relative fit index (RFI)	0.967	0.960
RMSEA	0.049	0.036
<i>Squared multiple correlations</i>		
Happiness	0.218***	0.230***
Flow exp.	-	0.461***

Notes: $n = 800$; significance level: *** $p < .0001$

Source: (by authors. Automatic SPSS software generated)

SEM model for mediating effect

The results (see figure 2) of the structural equation model revealed a perfect model fit indices with Chi-square = 49.116; TLI = 0.979; CFI = 0.986; IFI = 0.986; RMSEA = 0.036. Besides, the results showed that there is a significant and positive relationship between psychological needs satisfaction and flow experience

($\beta = 0.97$, $p\text{-value} = 0.0001$). Thus, this supports hypothesis H_1 of this study. Similarly, the results from this study indicated that there is a significant and positive relationship between psychological needs satisfaction and happiness at the workplace ($\beta = 0.156$, $p\text{-value} = 0.001$). This is in line with hypothesis H_2 under this study. The results from this study also show that there is a significant and positive relationship between flow experience and happiness at the workplace ($\beta = 0.138$, $p\text{-value} = 0.081$). This lends support to hypothesis H_3 of this study. Finally, the results indicate that flow experience significantly and positively mediates the relationship between psychological needs satisfaction and happiness at the workplace and it is a partial type of mediation effect ($\beta = 0.096$, $p\text{-value} < 0.05$) (Table 5 and 4). This supports hypothesis H_4 of the study. The inclusion of flow experience in the model explains 14 percent of the variation in happiness at the workplace. When flow experience is included into the model, it boosts the explanatory power of psychological needs satisfaction on happiness at the workplace by 9.6 percent (see Table 4)

Table 4. Total, direct and indirect effects in a SEM mediated model

Standardized total effects:	PsyNS	Flow exp.
Flow exp.	0.679***	0.000
Happiness	0.469***	0.141***
Standardized direct effects:	PsyNS	Flow exp.
Flow exp.	0.679***	0.000
Happiness	0.373***	0.141***
Standardized indirect effects:	PsyNS	Flow exp.
Flow exp.	0.000	0.000
Happiness	0.096***	0.000

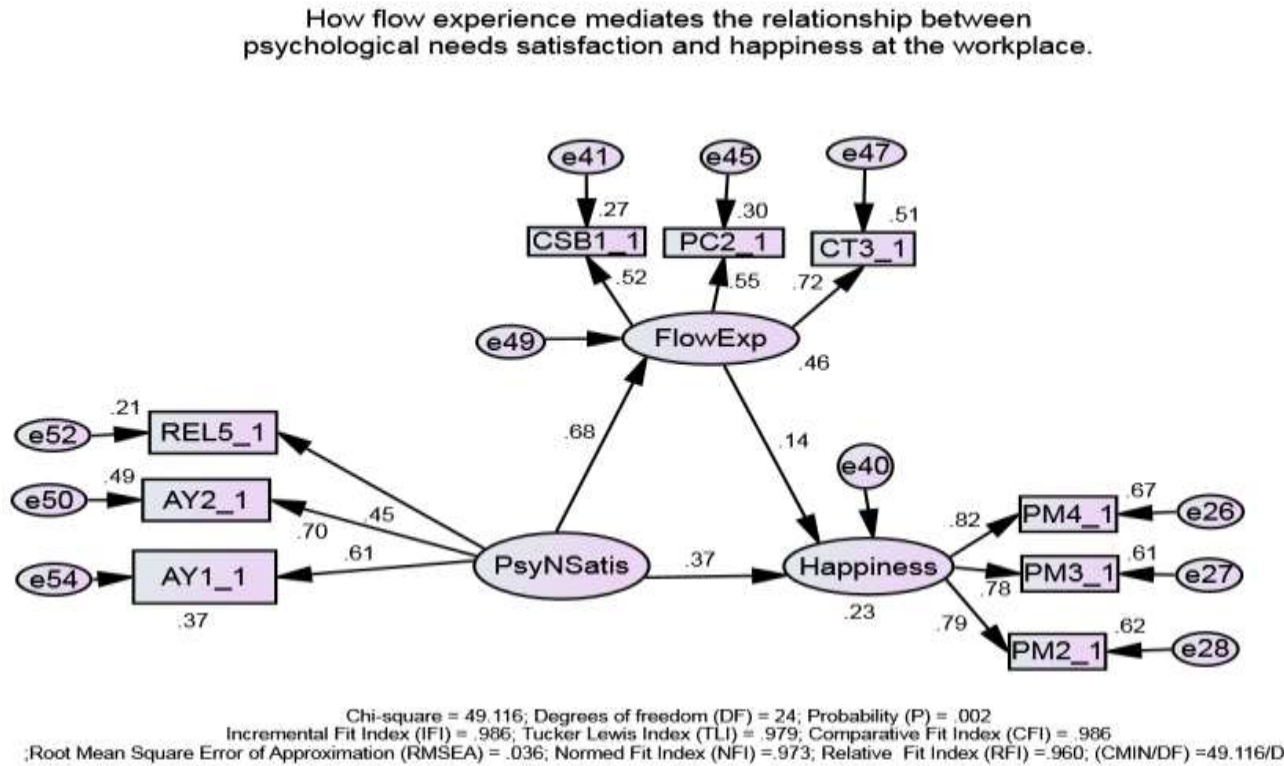
Table 5. Bootstrap Mediation Results

Bootstrap mediation results:	Point Estimates	SE	Lower Bounds	Upper Bounds	P
PsyNS \leftarrow Happiness	0.695	0.193	0.360	1.101	0.001
Flow exp. \leftarrow Happiness	0.241	0.173	0.103	0.584	0.164
Flowexp \leftarrow PsyNS	0.738	0.131	0.524	0.001	0.044

Notes: $n = 800$; significance level: *** $p < .0001$; ** $p < .001$; * $p < .05$

Source: (by authors. Automatic SPSS software generated)

1 **Figure 2.** *Final SEM model for mediation by flow experience*



2
 3 Source: (by authors, Automatic SPSS & AMOS software generated)

6 Discussion

7
 8 This study contributes to the existing literature on happiness at the workplace,
 9 psychological needs satisfaction and the role of flow experience on the relationship

between psychological needs satisfaction and happiness at the workplace. Based on hypothesis (H1), *this study finds that there is a positive relationship between psychological needs satisfaction and flow experience* among the professional nurses in public government hospitals in Uganda. The findings suggest that employees who are in friendship with co-workers experience concentrations at work (Moore and prentice (2013). Petri (2010) also argue that collegial relationships are all consistent with a more long lasting flow experience. However, Moore and Prentice (2013) argue that lack of interpersonal skills impede collegial interactions at the workplace. Therefore, the study argues that psychological needs satisfaction predicts flow experience.

Further, the results also reveal that *there is a significant positive relationship between flow experience and happiness at the workplace*. This confirm hypothesis (H2) of the study. The study finds that flow experience leads to employees' contentment and meaningfulness at the workplace (Chitty, & Black, 2015). This finding is consistent with (Moore and prentice (2013) who noted that skills variety relates to employee happiness. However, Madelon, Hooffa and Edwin Hooff, (2017) argue that lack of skills variety may induce boredom at work. This study argues that skill set/variety predicts joyfulness. This provides support to Psychology flow theory (Csikszentmihalyi, 1990).

Base on the hypothesis (H3) of this study, the results revealed that there is a significant positive relationship between psychological needs satisfaction and happiness at the workplace. Duffy et al., (2013) and Wörtler, Yperen, & Barelds, (2020), argue that psychological needs satisfaction is an important aspect in providing support to co-workers, and has a positive effect on employee contentment. Indeed as noted by Madlock, & Booth-Butterfield, (2012), when psychological needs satisfaction (relatedness, autonomy and competence) is strong, employee's meaningfulness and engagement will be easily observed, thus, feeling of happiness, which encourages friendships in the workplace.

Regarding H₄ on the mediation role of flow experience, the results indicate partial and significant mediation effect of flow experience on the relationship between psychological needs satisfaction and happiness at the workplace, thus supporting hypothesis **H4**. This confirms that the presence of flow experience partly acts as a conduit in the association between psychological needs satisfaction and happiness at the workplace among professional nurses in public hospitals in Uganda. This then means that whereas psychological needs satisfaction is directly associated with happiness at the workplace, its contribution can be partly felt through flow experience. It also means that psychological needs satisfaction and flow experience are significant predictors of happiness at the workplace. Therefore, when professional nurses are not feeling bored, have skills to meet challenges, get involved in hospital activities, persevere, and feel free to express ideas, it may enhance a powerful urge in them to care for patients and be joyful. This finding is consistent with Bakker and Demerouti, (2017), who argues that employees who are competent and balance their work challenges usually have a sense of meaningfulness at work. This finding also supports PsyFT (Csikszentmihalyi, 1975), which argues that concentration on the task, and

balancing challenges and skills promotes personal engagement, and meaningfulness Afriyie, Lemayon Melyoki & Nchimbi, 2020).

Summary and conclusion

The current study examined the relationship between PsyNS and happiness at the workplace, and the mediation role of flow experience in the relationship between PsyNS and happiness at the workplace. Through the self-administered questionnaire, 800 professional nurses were selected in Uganda's 3 regions, central, western and northern, to be part of the study. The current study hypothesized that there is a positive relationship between PsyNS and flow experience, PsyNS and happiness at the workplace, flow experience and happiness at the workplace. We also hypothesized that flow experience mediates the relationship between PsyNS and happiness at the workplace. Our results supported the hypotheses developed. This current study, recommends that those in charge of public hospitals in Uganda should not just focus on employee happiness, but should consider flow experience of professional nurses. This is because flow experience has been found in this paper to have a significant impact on professional nurse's happiness. As flow experience increases, professional nurses are more engaged and happier.

The study combined two theories; SDT and PsyFT by Fredrickson (2001) and Ryan and Deci (2002) respectively, to explain happiness at the workplace. Therefore, the integration of the two theories has provide more robust understanding of happiness at work and what explains it. This study is beneficial to human resource managers of public hospitals who deal with health employees. They should redesign the recruitment system and policies that can boost PsyNS and flow experience in order to promote happiness at the workplace among professional nurses in Uganda.

Like any other study, this study also has limitations which are discussed alongside suggestions for future studies. First, the research only considered professional nurses in the public health sector in Uganda and did not consider other categories of medical workers, like medical doctors, clinical officers, administrators, support staff, and even professional nurses in private medical practice. These could be used as samples in future studies. This research only focuses on two factors that predict happiness at the workplace that is PsyNS and flow experience. Future studies can consider other factors that predict happiness at the workplace, such as environment factors and self-driven personality (Csikszentmihalyi, 2005; Luthans 2002) among other factors. Future researchers should be interested in finding out other factors that predict happiness at the workplace in developing countries like Uganda. Hence, the implementation of autonomy, relatedness, and competence must be aligned with the organization's strategic goals like employee happiness at the workplace. In addition, this study focused only on cross-sectional data, thus, a longitudinal study and experiments may be used. Besides, the current study was purely quantitative, therefore a qualitative survey or a mixed methods design may be utilized in future.

List of Acronyms

PsyINS: Psychological Needs Satisfaction
HWP: Happiness at the Workplace
SEM: Structural Equation Modelling
AMOS: Analysis of Moment Structure.

References

- Afriyie N, Lemayon L. Melyoki & Nchimbi, M (2020). The Influence of Employee Self-efficacy, Outcome Expectation and Firm Resources on Intrapreneurial Behaviour: Insight from Ghana. *Athens Journal of Business & Economics*, Vol,(Issue): Pages
- Andersson I., Ejlerstsson G, Troein M. (2011). Exploring workplace related factors and health from a salutogenic perspective. Results from a focus group study among health care workers in Sweden.
- Bakker, A.B. & Demerouti, E. (2017). The Job Demand-Resources model: state of the art. *Journal of Managerial Psychology*, 22(3), 309-328.
- Ceja, L., & Navarro, J. (2011). Dynamic patterns of flow in the workplace: Characterizing within- individual variability using a complexity science approach. *Journal of Organizational Behavior*, 32, 627–651.
- Chitty, K. K., & Black, B. P. (2015). Nurse as a Facilitator to Professional Communication: A Qualitative Study. *Global Journal of Health Science*; 7(2), 294-303.
- Creswell, J.W., (2009). *Research design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd edn.). Thousand Oaks, CA: Sage.
- Cronbach, L.J., (1951). Coefficient alpha and the internal structure of tests. *Psychometrics*, 16, 297-334 28,307.
- Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience*. New York: Harper Perennial.
- Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience*. New York: Harper Perennial.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety: Experiencing flow in work and play*. San Francisco: Jossey-Bass.
- Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York, NY: Basic Books.
- Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York, NY: Basic Books.
- Csikszentmihalyi, M. (2001). *Finding Flow. The psychology of engagement with everyday life*. New York: Basic Books.
- Csikszentmihalyi, M. (2005). The role of flow experience in happiness at the workplace. *Journal of positive psychology*. 56(5), 33-48.
- Deci, E.L. & Ryan, R.M. (1985). *Intrinsic Motivation and Self-determination in Human Behavior*. New York: Plenum.
- Deci, E.L., & Ryan, R.M. (1985). Self-determination theory and the facilitation of intrinsic motivation, social development, and wellbeing. *American Psychologist*, 55, 68–78.
- Deci, E.L., & Ryan, R.M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11 (7), 227–268.
- Diener, E. (2011). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 5(5), 34–43.

- 1 Duffy, R. D., Allan, B. A., Autin, K. L., & Bott, E. M. (2013). Calling and life satisfaction:
2 It's not about having it, it's about living it. *Journal of Counseling Psychology*, 1(12),
3 60-77.
- 4 Fatma S., Tayfun D., Seda S., Selin T.m Fatma & Dilek T., (2012). Examining Predictive
5 Role of Psychological Need,Satisfaction on Happiness in terms of Self-
6 Determination Theory. *Journal of Social and Behavioral Sciences* 55, 861 – 868.
- 7 Field. A. (2009). *Discovering Statistics Using SPSS (3RDed)*. London: Sage.
- 8 Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with
9 unobservable variables and measurement error. *Journal of marketing research*, 39-
10 50.
- 11 Fredrickson, B.L., (2001).The role of positive emotions in positive psychology: The
12 broaden-and-build theory of positive emotions, *American Psychologist* 56, 218–
13 226.
- 14 Fullagar, C.J, & Kelloway E K. (2009). Flow at Work: An Experience Sampling
15 Approach. *Journal of occupational and organizational psychology*. 82(3): 595-615.
- 16 Hair, J.F. Anderson, R.E., Tatham, R. L., W. C. (2012). *Multivariate Data Analysis*. Upper
17 Saddle River, NJ: Prentice- Hall.
- 18 Hair, J.F., William, C.B., Barry B.J., Rolph, E.A., & Ronald, L.T., (2010). *Multivariate*
19 *Data Analysis*. (6thed). NJ: Pearson Education Inc: Upper Saddle River.
- 20 health outcomes among nurses in health facilities of Bushenyi district Western
21 Uganda. *Special Journal of Public Health, Nutrition, and Dietetics*. 2022, 2(2): 1-18
- 22 Ilies et al. (2017). *Applied Psychology*. An international review. Flow at work and basic
23 psychological needs: Effects on well-being. *Journal of International Association of*
24 *Applied Psychology*.
- 25 Ilies et al. (2017). *Applied Psychology*. An international review. Flow at work and basic
26 psychological needs: Effects on well-being. *Journal of International Association of*
27 *Applied Psychology*.
- 28 Ilies, R., Aw, S.S.Y., & Pluut, H. (2015). Intra individual models of employee wellbeing:
29 What have we learned and where do we go from here? *European Journal of Work*
30 *and Organizational Psychology*, 24, 827–838.
- 31 Kabunga A, Okalo P. (2021). Prevalence and predictors of burnout among nurses during
32 COVID-19: a crosssectional study in hospitals in central Uganda. *BMJ Open*
33 2021;11:e054284.doi:10.1136/ bmjopen-2021-054284
- 34 Kagaari, J. & Munene, J.C. (2007). Engineering Lecturers Competencies and
35 Organizational Citizenship Behaviours at Kyambogo University. *Journal of European*
36 *Industrial Training*, 31(9), 706-726.
- 37 Kawalya, et al., (2019). Psychological capital and happiness at the workplace: The
38 mediating role of flow experience, *Cogent Business & Management*, 6:1,
39 1685060.
- 40 Luthans, F. (2002). Positive organizational behavior: Developing and managing
41 psychological strengths. *Academy of Management Executive*, 1(6), 57–72.
- 42 Lyubomirsky & sheldon (2012). The Challenge of Staying Happier: Testing the Hedonic
43 Adaptation Prevention Model. *Personality and Social Psychology Bulletin*. 38(5)
44 670–680.
- 45 Lyubomirsky, S., King, L.A., & Diener, E. (2005). Does Happiness Promote Career
46 Success? Revisiting the Evidence. *Journal of Career Assessment*. 1(21), 2-19.
- 47 Lyubomirsky, S., Sheldon, K.M. & Schkade, D. (2005). Pursuing happiness: The
48 architecture of sustainable change. *Review of General Psychology*, 9(3), 111-131.
- 49 Madelon et al., (2017). Boredom at work: towards a dynamic spillover model of need
50 satisfaction, work motivation, and work-related boredom. *Journal of work and*
51 *organizational psychology*. 26(1), 133–148.

- 1 Madlock, P.E., & Booth-Butterfield, M. (2012). The influence of relational maintenance
2 strategies among coworkers. *International Journal of Business Communication*,
3 49(1), 21-47.
- 4 Meyer, H. (2013). Fun for Everyone. *The Journal of Business Strategy*. 21(4):I3-I7.
- 5 Moore, J., & Prentice, D. (2013). Collaboration among nurse practitioners and registered
6 nursing outpatient oncology settings in Canada. *Journal of Advanced Nursing*. 69(7),
7 1574–1583.
- 8 Musiimenta P, Munezero JBT, Moazzam ML, Kabanyoro A. Occupational stress and its
9 Nakamura, J., & Csikszentmihalyi, M. (2002). The concept of flow. A hand book of
10 positive psychology New York: Oxford University Press.
- 11 Onaolapo BA*, Olaore± OG, Udofia EE & Adenigba OA (2021). COVID-19 Pandemic
12 and Business Survival as Mediation on the Performance of Firms in the FMCG-
13 Sector. *Athens Journal of Business & Economics*, 7: 1-22.
- 14 Petri, L. (2010). Concept analysis of interdisciplinary collaboration, *Journal of Nursing*
15 *Forum*, 4(52), 73–82.
- 16 Preacher, K.J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing
17 and comparing indirect effects in multiple mediator models. *Behavior Research*
18 *Methods*, 40(3).
- 19 Preacher, K.J., & Hayes, A. F. (2010). SPSS and SAS procedures for estimating indirect
20 effects in simple mediation models. *Behavior Research Methods, Instruments,*
21 *and Computers*, 36, 717-731.
- 22 Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of
23 intrinsic motivation, social development, and well-being. *American Psychologist*, 5,
24 68-78.
- 25 Ryan, R., & Deci, E. (2002). Self-determination theory and the facilitation of intrinsic
26 motivation, social development, and well-being. *American Psychologist*, 55(1), 68–
27 78.
- 28 Ryan, R., & Deci, E. (2002). Self-determination theory and the facilitation of intrinsic
29 motivation, social development, and well-being. *American Psychologist*, 55(1), 68–
30 78.
- 31 Ryan, R.M. & Connell. J.P. (1989). Perceived locus of causality and internalization:
32 Examining reasons for acting in two domains. *Journal of Personality and Social*
33 *Psychology*. 5(7), 749–761.
- 34 Seligman, M.E.P. (2002). *Authentic Happiness: Using the New Positive Psychology to*
35 *Realize Your Potential for Lasting Fulfillment*. New York: Free Press.
- 36 Seligman, M.E.P. (2002). *Authentic Happiness: Using the New Positive Psychology to*
37 *Realize Your Potential for Lasting Fulfillment*. New York: Free Press.
- 38 Seligman, M.E.P. (2004). *Character Strengths and Virtues: A Handbook and*
39 *Classification*. Washington, DC: American Psychological Association.
- 40 Sheldon, K. M., Ryan, R. M., & Reis, H. T. (1996). What Makes for a Good Day?
41 Competence and Autonomy in the Day and in the Person. *Personality and Social*
42 *Psychology Bulletin*, 2(2), 1270-1279.
- 43 Shmotkin, D. (2005). Happiness in the face of adversity: Reformulating the dynamic and
44 modular bases of subjective well-being. *Review of General Psychology*, 4(9), 291–
45 325.
- 46 Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th edn.). Allyn and
47 Bacon: New York, NY.
- 48 Tim J & Amy I (2023). Whose ‘flow’ is it anyway? The demographic correlates of ‘flow
49 proneness’ *Journal of personality and individual differences*. [https://doi.org/10.1016/](https://doi.org/10.1016/j.paid.2023.112207)
50 [j.paid.2023.112207](https://doi.org/10.1016/j.paid.2023.112207).

- 1 Uganda Bureau of Statistics. National Population and Housing Census (2014). Kampala:
2 UBOS; 2014. <http://www.ubos.org/onlinefiles/uploads/ubos/NPHC/NPHC%202014%20PROVISIONAL%20RESULTS%20REPORT>.
3
4 Uganda Bureau of Statistics. National Population and Housing Census (2014). Kampala:
5 UBOS; 2014. <http://www.ubos.org/onlinefiles/uploads/ubos/NPHC/NPHC%202014%20PROVISIONAL%20RESULTS%20REPORT>.
6
7 Waterschoot, J., Van der Kaap-Deeder, J., & Vansteenkiste, M. (2020). The role of
8 competence-related attentional bias and resilience in restoring thwarted feelings of
9 competence. *Motivation and Emotion*. <https://doi.org/10.1007/s11031-019-09776-8>.
10 White, R.W. (1959). Motivation reconsidered: The concept of competence. *Psychological*
11 *Review*.6 (6), 297–333.
12 Wörtler, B., Van Yperen, N., & Barelds, D. P. H. (2020). Do individual differences in
13 need strength moderate the relations between basic psychological need satisfaction
14 and organizational citizenship behavior? *Motivation and Emotion*. <https://doi.org/10.1007/s11031-019-09775-9>
15
16 Wray-Lake, L., DeHaan, C. R., Shuber, J., & Ryan, R. M. (2019). Examining links from
17 civic engagement to daily well-being from a self-determination theory
18 perspective. *Journal of Positive Psychology*,14, 166–177.
19 Yu, S., Levesque-Bristol, C., & Maeda, Y. (2018). General need for autonomy and
20 subjective well-being: A meta-analysis of studies in the US and East Asia. *Journal of*
21 *Happiness Studies*, 19, 1863–1882.
22 Zhao, et al., (2010). Reconsidering Myths and Truths about Mediation Analysis. *Journal*
23 *of Consumer Research*, 37(3), 197-206.