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RESEARCH ARTICLE

A REFLECTION ON THE IMPLEMENTATION OF FLEXI- WORKING HOURS ON PUBLIC HEALTH SERVICE DELIVERY DURING CORONAVIRUS (COVID-19) ERA IN ZIMBABWE: THE SURVEY FOR THE NURSING PROFESSIONALS EMPLOYED AT PARIRENYATWA GROUP OF HOSPITALS

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Abstract

Implementation of flexi working hours by nurses in the public sector settings attracts different interpretations and presents varying effects to both individuals and the employer. The ability of the Zimbabwe's public tertiary health facilities in managing coronavirus (COVID-19) need to be assessed against implementation of flexi hours in a low resource setting. The study objectives were; to identify the determinants of adopting of flexi hours schedule amongst nursing professionals at public hospitals; and assess the impact of flexible working hours on hospital's capacity to control effectively the transmission and impact of COVID-19. The study specifically tested the influence of variables age, gender, salary, union's power and additional personnel on the choice by nurses in engaging in flexi hours. The study conducted a survey analyzing and used (n) 653 nurses from Parirenyatwa Group of Hospitals who reported for duty doing flexi hours in the last three months prior to the study. The sample was chosen from 1000 randomly selected nurses using one multi stage cluster sampling (probability sampling design). The respondents were targeted from critical and emergency departments essential in handling and managing COVID-19 possible cases. Data was collected through a self-administered questionnaire on study variables and effects of flexi hours. Logistic regression analyzed data from the sample (n) 653 nurses to identify determinants of flexible working arrangement within public health institution screening, testing and managing COVID-19 patients. The results of the study revealed that age, gender, union power and work force (nurse) shortages all have a significant statistical association with choice to engage in flexible working hours at public health institutions. However, the analysis revealed that salary had negative outcome and an insignificant variable. Health workforce and age of a nurse negatively affect the choice of flexi hours at any given time, whereas gender and union power positively influence adoption of flexible working arrangements by nurses. Flexi hours by nurses compromised the effective screening, testing and possible management of COVID-19 cases at a public hospital serving dynamic urban population. The confirmed effects from flexible working schedules included headache-backache problems; stress, sleeping, accuracy and family problems. The female nurses were affected more than male nurse

counterparts. Flexi hours remain an effective tool to help employees cope up with individual demands. However, there is need for proper policy framework and procedures for its implementation, in order to give employers increased performance and productivity. Systematic implementation of flexi hours in low resource setting environment would be effective if nurse's safety remain guaranteed amid the COVID-19 pandemic. The need for safety measures to limit exposure to coronavirus by nurses and improvements in the availability of PPEs is equally important to sustain implementation of a workable flexible working hours schedule for the nurses. The nurses need to be properly educated on effects of flexi hours so that they make informed choices balancing both the organization and individual expectations. Public health institutions need to generate data on flexi working schedules to guide evidenced policy decisions on managing effects arising from extended working hours. Continued health research remain necessary to answer the ever-changing health sector and employee demands in resource-constrained setting and especially in eliminating coronavirus (COVID-19) in Zimbabwe.

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Introduction:-

The arrangement of working hours in the public sector have become more variable (e.g. shifts, irregular shifts schedules, compressed work weeks, split shifts, etc.) at different institutions that are ever responding to globalization pressure to adopt modern technology in the production and service delivery systems. The contemporary institutions are changing speedily not only in terms of economic efficiency and productive strategies (e.g. new technologies, information processes), but mainly in terms of extensive societal influence, individual preferences and occupations (Costa et al. 2004). Therefore, continuous adjustments have to be made in response to the public sector evolution and organization.

Flexible working time arrangements are now viewed as essential pillars to support efficiency and effectiveness in organizations. Employers continue to call for flexibility especially the adoption of flexi working hours to meet employee satisfaction and workers union demands within the global competitive wave (Nachreiner F. 2003). In Zimbabwe, personnel costs like the wage bill, consumes more resources from the national health budget thereby posing a challenge in meeting the ever-increasing demand for improved access to health care by the general populace (Analyzing Fiscal Space Options for Health in Zimbabwe, Final Report February 2017). The perennial labour withdrawal by nurses and doctors in Zimbabwe in the past two years supported the claim that the government is inadequately remunerating health professionals leading to calls for adopting flexible working hours to cushion health workers against the rising costs. The unsolved puzzle is what really flexible working hours mean and how best the 'flexi time' schedule can be implemented in a low resource setting (Costa G et al. 2003; Lenzing K, 2001) given the dynamism in the epidemiological patterns i.e. recent upsurge of Coronavirus (COVID-19) in African countries.

In some sectors, every kind of working hours that diverge from 'normal agreed' working hours is classified as 'flexible working hours', thus at times including fixed shift work or some form of part time work. The other problem emanate from the fact that there is absence of empirical evidence to explain the effects of flexi working hours on both individual health professionals and the health facilities managing emergency clinical conditions (Costa G, Akerstedt T, Nachreiner F, Frings-Dresen F, Folkard S, Gadbois C et al. 2003). In particular, controlled and comparative studies on effects of flexible working hours in response to emerging pandemics like COVID-19 for public health institutions are entirely missing and thus evidence based recommendations for the workable schedule of flexible working hour arrangements remain essential.

The 'flexi- working hour arrangements' are commonly fashioned essentially bearing adaptation and change focus in such a way that working hours are responsive enough to the prevailing demands at hand, either the company demands or health workforce demands. Therefore, flexible working hours adopt an assumption that working hours are

variable in duration and/or in position, emanating either from the employer, employees or both (Janssen D et al & Nachreiner F, 2004).

When defining flexible working hours, the underlining distinction is based on where the influence or pressure to embark on flexi time emanates from, that is either the 'company-based flexibility' or the 'individual-oriented flexibility'. According to the SALTSAPROject on flexible working hours, the concept involves a "continuous choice made by the employers, employees or both, pertaining the sum (chronometry) and the temporary distribution (chronology)" of ones' working hours (Janssen D et al & Nachreiner F, 2004; Costa et al. 2004). Temporal flexibility embroils variations in the arrangements of the total working hours such as flexi time (Reilly 1998; Perrons 1999; Grote & Raeder 2009). Where flexi time is applied, an employee would be expected to cover the core hours at work say 1000hrs –1600hrs and the other hours of the working day maybe 'flexi time', where employees can choose when to be at work, subject to achieving the total daily or weekly hours expected from each staff member. The flexi working arrangement tend to give employees greater freedom to arrange their working schedule depending on the workplace numbers and the nature of duties performed. In the nursing profession, such an arrangement would have consequences on the performance of the specialized wards and units at a public hospital. Six independent studies conducted from various countries suggested that flexible working hours' occurrence is highly dependent on the prevailing economic performance, social status, and gender thus mostly result in individual negative effects associated with stress, sleep, and social and mental health. The conclusions from the studies pointed that flexibility minimizes the social and occupational negative effects of the company-based flexibility (Costa et al. 2004).

Contemporary research in both developed and developing countries indicate that flexible working arrangement serve as one of the retention strategies amongst nursing professionals. The majority of senior nurses prefer part time schedules while younger nurses are seemingly more interested in the flexible work schedules. In all countries studied, flexible working hours present nurses with a flexibility in managing their personal development work and life programs thus still remain a powerful retention strategy.

Although flexing is popular in the nursing profession, the organization of working hours/shifts need to be carefully structured by management. The nurses' flexi time work schedules have been associated with chronic fatigue, emotional exhaustion, stress and poor performance and individual reaction time. In the modern day, some nurses may prefer working the extended hours from the normal work schedule. However, governments and health regulator organizations are becoming safety-sensitive and vocal in directing total work hours for health professionals in the interest of both the employee and for public safety (Trinkoff et al. 2006). Most of work ethics and cultures place emphasis on the visible physical presence of the employee (Harrington et al. 2008). In an Irish study conducted by Harrington et al. (2008), respondents observed the management and peers viewed those on flexi working schedule-exhibiting lack of commitment and attachment. In contrast, these employees felt very committed and attached to their work. In fact, they felt engaging in flexible working schedule had in fact increased their social attachment and psychological perception of the organization (Brewer 2000; McDonald et al. 2007). Therefore, the effect of flexible working hours have both individual and public view point when explaining its relevancy in performance cycles.

There is a lot of dynamism in the social and economic manifestation of flexible working arrangements in meeting the demands of both work and family (Maher et al. 2008). The determinants of flexible working arrangement now have more to do with gender, age and even geographical location of the health professional. In the study from the Australian Centre for Women's Studies and Gender Research, the traditional stages of family growth have completely changed (Maher et al. 2008). The study revealed that women expected to be able to flexi their working time at a time their children are young and would begin normal work schedules as children grow and move into independent schools. Contrary, the family commitments presented a more complex work schedule, which recorded more women dropping flexi working time schedules due to children's extra-curricular endeavors. In fact, even reduced flexible working hours became more challenging to balance with household needs. There is a strong belief that if nurses can be able to strike balance between their work schedules with family and personal obligations, they is likelihood of them becoming more satisfied, achieving high personal commitment and performance at work (Ingersoll et. al 2002).

In Zimbabwe, flexi time schedules have been a born of contention between the employer and employees with only the medical doctors accepted to do flexible working hours. With the growing pressure from health workers unions and professional associations, flexi time amongst nurses was introduced in the public health service through the signing of Collective Bargaining Agreement (CBA) No.1 and 2 of 2019, having noted that nursing professionals are

incapacitated and the current remuneration is inadequate for subsistence. Therefore, flexi time was agreed upon as a measure (a) to mitigate against prevailing transportation/travelling costs, as the nurses would have reduced working days and (b) to save on subsistence costs for members at workplaces. At its inception, flexi time was premised upon members working a 40-hour week arrangement, with institutions making internal arrangements for implementing the flexi-time scheduling. The CBA 1 and 2 of 2019 initially provided that the principle of flexible working hours was to continue, "until there was a review of remuneration". The spirit of the CBA was that the implementation of flexi time should not interfere with the total 40 working hours per week but allow nurses to work extended hours of the reduced weekdays, but maintaining a total number of the monthly hours worked. The implementation of the CBA resulted in nurses at Parirenyatwa Group of Hospitals engaging into 2-3 working days per week at times coupled with extended 12-hour day's work. Nursing cadres report for duty for at least 16 - 36 hours per week against the expected 40 hours set by the employer. All nursing departments or units regardless of the function, level and workload implement the flexi time work schedule. The flexi time work schedules continued despite having the COVID-19 declared a pandemic by the WHO and the Declaration of a State of National Disaster by Zimbabwean government in terms of Statutory Instrument 76 of 2020, the Civil Protection (Declaration of State of Disaster: Rural and Urban Areas of Zimbabwe)(COVID-19) Notice, 2020. In addition, the Public Health (COVID-19 Prevention, Containment and Treatment) Regulations, 2020, SI 78 of 2020, declared COVID-19 to be a Formidable Epidemic Disease, in terms of section 64 of the Public Health Act. The Declaration of a State of National Disaster in terms of the Civil Protection Act meant that there was need to revise the existing working arrangements by nurses to suit the demands of the declarations of State of National Disaster. In view of the existing legal context, the employer has often presented that as the country fights the COVID-19, the introduction of flexi working hours for nursing professionals had become incompatible with the legal framework hence need abolishment (Health Service BNP, 2020).

Given the above reflections, the study objectives targeted on:

1. identifying the determinants of adoption of flexi- hours schedule amongst nursing professionals at public hospitals; and
2. assessing the impact of flexi- working hours on public hospital's capacity to provide effective testing and clinical management for COVID-19 patients.

Methods:-

Design, study population and sample:

A cross-sectional study was conducted through a survey amongst the nursing professionals who reported to work during the COVID-19 period at a central level hospital in the capital city Harare. The survey was done amongst nurses on a flexi-working hour arrangement at Parirenyatwa Group of Hospitals covering the emergency areas, High Dependency Units (HDU) and intensive critical units in the screening, testing and clinical management of COVID-19 patients. The central hospital was selected because it is a major referral centre in the country and the impact of implementing flexi working hours can be easily assessed given that more specialist services are expected to be conducted at this tertiary level. In addition, the socio-economic effects of flexi working arrangement would likely be significant in an urban city life that presents dynamism in household consumptions.

The study population was made up of (N)=1000 randomly selected nurses who had reported for duty for at least 3 months continuous after the signing of the Health Service BNP Collective Bargaining Agreement Number 1 and 2 of 2019 that gave birth to the flexi-hours service wide excluding nurse managers. The sample size was (n=653) nurses who reported having performed flexible working hours within the last three months before the survey, but residing in Harare. The sample size was calculated based on the institution's nurse population size and degree of confidence: 90% (alpha error of 0.1).

The multi-stage probability sampling technique was used to select participants where firstly primary sampling units or wards were randomly selected from the existing critical emergency units or wards at the hospital. Secondly, 16 units and departments chosen with consideration of probability proportional to size. Finally, respondents randomly were selected. The sample range was calculated according to number of subjects in each ward or unit. The initial subject randomly selected.

Questionnaire:

The study used a questionnaire designed by the Principal Investigator based on existing literature (Folkard S, 2003; Costa G et al. 2003; Nachreiner F, 2004) to establish existence and effects of flexi working hours on public

healthcare. The development process and validation of the tool are exhausted elsewhere (Garcia-Subirats et al., 2014). Clarity on questioning and applicability of flexi working concept was improved with guidance from health management experts and the employer representatives to achieve data relevancy and reliability. The questionnaire was divided into three sections with the first covering the socio-demographic variables; age and gender. The second section assessed the workload components and thirdly the, explanatory variables (salary, union pressure and health workforce - the nurse personnel) as push variables to the choice of adopting flexi working hour arrangement in the last three months prior to the survey. Lastly, the section evaluated the effects and the possible impact of flexi working hours in fighting COVID-19.

Data collection:

Data was collected through the use of data collectors who administered the study instrument after being trained on data collection. The data collection training and emphasis covered the study variables, data validity in collection; safety behaviours for collectors and participants against COVID-19; ensuring confidentiality and respect for professional opinions and ethics (Campbell et al., 2002). The face-to-face interviews were also used to verify facts and seek clarification on responses obtained. In ensuring data quality and consistency, the study conducted close supervision of data collectors and interviewers in the field. In addition, pre-testing and the review of all questionnaires. Data irregularities observed in the course of data entry were controlled.

Variables:

The dependent variable of study was the decision to engage in flexi working hours by nurses likely to deal with COVID-19 cases in the last 3 months of service using a yes/ no response. Those who indicated that they did not choose flexi working schedule were later excluded in the analysis. The reasons for not engaging in flexi working hours became open-ended questions. In assessing, the perceived effects of flexi working hours on both the individual and the capacity of the healthcare system in dealing with COVID-19 cases was inferred from the study variables.

The socio-demographic variables; age; and gender were the explanatory variables that reflect on how the flexi working hours could be determined by the social status of the employed nursing professionals and their preparedness to commit themselves in managing COVID-19 patients in a public hospital setting. The decision on whether or not to engage on flexi-hours was further estimated using a set of economic variables: salary, union pressure and health work force shortages (International Council of Nurses, 2012).

Data analysis:

Summaries of descriptive data, cross tabulations and logistic regression were done to identify and ascertain association between variables and of the participant's flexi working hours. In conducting regression analysis, only data from the sample $n = 653$ nurses was used out of the population ($N = 1000$ nurses (representing 65.3% response rate) to identify determinants of flexi hours within public health institutions screening, testing and managing COVID-19 patients.

A univariate analysis was performed to describe the distribution of the outcome variable and explanatory variables using the chi-square test for categorical variables. The Data analysis was done using the Statistical Package for Social Sciences (SPSS) version 20 according to the study dependent variable. The significance level was at <0.05 .

Results:-

Of the ($N = 1000$) nurses surveyed, 347 did not engage in the flexible working arrangement and maintained their normal 8 hour daily shifts as per the prepared rosters within the last 3 months before the survey. The Figure 1 below outline the distribution of the respondents within considered departments and units at Parirenyatwa Group of Hospitals during the survey.

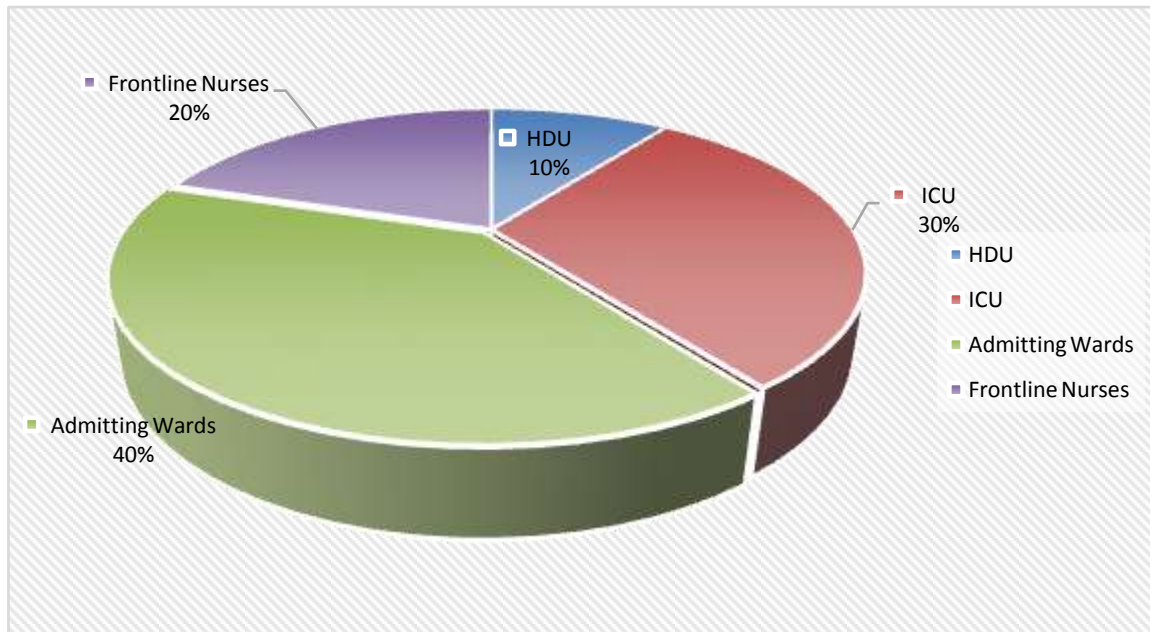


Figure 1:- Percentage Distribution of Sample (n) 653 Nurses.

The average nurse's age of those engaged in flexible working schedules was calculated as 34 years and within the 20 – <39 years range. Very few nurses ($n < 7\%$) sampled were found below the age of 19 years. The distribution strongly suggests $n = 60\%$ of nurses engaging in flexi time are the economically young middle age groups who are also the childbearing age group. The respondents' distributions further describes that as one grows older into the late 40s of age, there is less appetite ($n = 25\%$) to engage in flexi time and is likely to diminish (below $n = 6.5\%$) for those in the post retirement age (>60 – 79 years). Therefore, there might be a strong association between choice to engage in flexi time and the age of the nurse regardless of gender. Such predictions are very useful to health policy planners and need to be sustained by statistical data analysis. The median age was 31 and standard deviation calculated as 12.55.

The study revealed that of the respondents who reported for duty in the last 3 months prior to the survey, $n = 537$ (approximately 83%) acknowledged having engaged in flexi working hours while 118 (approximately 18%) reported not having done flexible working schedules. The data indicate there are more nurses on the flexi time arrangements at any given time despite public institutions confronted with fighting the spread/outbreak of and managing COVID-19 pandemic. There are greater chances that critical or emergency departments are not operating at full scale as more nurses are working reduced working days. The indications from the data are consistent with conclusions by many health critics that Zimbabwe's public health institutions are not yet prepared to handle COVID-19 cases owing to inadequacy of nursing staff for screening, testing, managing reported cases and lack of personal protective equipment (PPEs).

The data also showed that of the male respondents studied, $n = 239$ had engaged in flexi time work schedules in the past 3 months prior to the survey. Of the female nurses, 414 reported for work and did flexi hours in the same period. Therefore, of the $n = 653$ studied, males represented 37% and females 64% respectively. The distribution supports conclusions by International Council of Nurses, (2012) publication that pointed that the nursing personnel is highly gendered, and dominated mostly by females. The female nurses tend to do less flexi hours at their younger age or before they get many children due to less household responsibilities, hence they can spend the expected 40 hours per week as anticipated by the employer. However, as the family grows bigger, female nurses have to balance work and household chores hence would prefer flexi time with long working hours but shortened weekdays to spend more time with family.

The study data indicate 94% of respondents strongly follow directives and suggestions from their union leaders on whether or not to implement flexi time. Of the n=653, more than 87% ranked the Zimbabwe Nurses Association as the most powerful group amongst all health worker representatives in Zimbabwe as they constitute bigger constituencies compared to doctors and other paramedics. Follow up interviews revealed that the choice of continuing with flexi working hours in Zimbabwe is now more a political game where union leaders test their support through pushing for adoption of schedules that expose the employer as weak and not able to remunerate employees adequately. Such indications proved as existing on the ground as nurses vowed to continue implementing flexi working hours despite the call by government for all the health professionals as an essential service, to join hands in fighting transmission of COVID-19 among communities.

In analyzing the determinants of choice of flexi working hours, the study used the Probit regression and the Hosmer-Lemeshow to test overall goodness of fit for the entire regression model.

Table 1:- Regression Analysis on determinates of flexible working hours.

Dependent Variable: FLEXIBLE_WORKING_HOURS							
Method: ML - Binary Probit							
Logistic regression				Number of obs =	653		
				Wald chi2(6) =	23.45		
				Prob > chi2 =	0.0007		
Log pseudolikelihood = -294.00047				Pseudo R2 =	0.0423		

	Odd ratio	Coefficient	Std. Err.	z	P>z	[95% Conf. Interval]	
UNION_POWER	1.800	0.3210**	0.1475	2.12	0.028	1.046	3.095
SALARY	0.984	-0.0085	0.093	-0.17	0.869	0.817	1.186
HEALTH_WORKFORCE	0.652	-0.2469***	0.099	-2.82	0.004	0.484	0.878
AGE	0.828	-0.0953*	0.122	-1.28	0.066	0.068	1.105
GENDER	1.963	0.3728***	0.537	2.47	0.014	1.149	3.355
_cons	0.065	-1.5821***	0.055	-3.26	0.001	0.013	0.337

*Significant at 10%. **Significant at 5% level. ***Significant at 1 % level of significance

Regression analysis showed union power has a positive relationship, between agreement or announcement by nurses' union leaders calling for flexi hours and individual nurse's choice to engage in flexible working schedules when rosters are developed (p-Value=0.028) as it was at 5% significance level. An increase in number of nurses receiving instructions from union leaders on flexi hours increases the probability of the individual nurse choosing to do flexi hours by 0.32. The coefficient size is big to be trusted with a standard error of 0.14. The individual nurse who perceives official the communication from Zimbabwe Nurses Association leadership to engage on flexi hours have higher chances of obeying the directive compared to a nurse who does not subscribe to union leaders control.

The variable of salary paid to a nurse had no statistical significance (p-Value=0.87) and was insignificant at all levels. There is no association between flexible working hours and salary paid (low or increased) as the variable was not significant at all levels. As the salary of a nurse decrease, there seems to be no reduction of individual flexi working hours performed, instead, the prospect of doing flexi hours remains high. The predicted probabilities indicate that as the salary of a nurse is reduced or lowered, the higher are chances of an individual nurse choosing flexible working schedules. The coefficient shows that salary has a negative relationship with the choice to engage in flexible working hours at a public hospital. Although analysis indicate the variable insignificant, in Zimbabwe adoption of flexi hours was resultant of poor salaries paid by government to nurses. Therefore, in countries still struggling with managing wage bills, if salary scales remain too low, there is a potential to trigger alteration of working hours in the name of flexible working arrangements. Salary issues attracts interests of health workers' unions hence if workers view doing flexi hours as a saving, they are bound to choose flexi hours saving on costs i.e. transportation.

The study revealed an association exists between the health workforce - employed nurses per department to meet the daily workload, and choice to do flexible working hours by nurses (p-Value=0.004) as this was at 1 % significant

level. The coefficient indicates there is a negative association between the number of employed nurses for the daily workload and flexi working hours. As one individual/ nurse is added to the existing number of nurses (staff compliment), the probability of experiencing a constrained roaster due to flexi working hours would decrease by 0.2. The results confirm that the argument of being forced to do flexi hours due to increased workload experienced by nurses may not hold water in justifying flexible working hours at Parirenyatwa Group of hospital when the country is fighting COVID-19. If the number of nurses working at emergency and critical departments is increased, there must be a gradual decrease in the total flexible working hours recorded at each department, especially when nurses are supposed to be heavily involved in screening and mobilizing for testing patients for COVID-19. If numbers are to remain low and flexi hours increased or continued, the capacity for effective screening of the public and testing for COVID-19 remain seriously compromised. Therefore, the ability of the public health system implementing WHO guidelines in reducing transmission of COVID-19 would also be difficult to implement hence it may take longer for Zimbabwe to eliminate COVID-19.

There was a negative outcome between the age of a nurse and the choice of flexible working hours (p-Value=0.066). The model showed age had a statistical significance at 10 % level of significance in influencing engaging in flexi time. The higher the age of an employed nurse increases in service, the less likely that one can commit to flexi working hours schedules. As one gets older, the ability to do long working hour schedules become difficult as there would be higher chances of experiencing health related problems if they do not get enough rest. The marginal effects on the outcome founds that an extra year attained on age by a nurse reduces the prospect of choosing flexible working schedule by approximately 0.095. The association demonstrates that older nurses employed in the essential health services in the urban have a less probability of doing flexi hours than those younger in age employed in same health facilities.

The statistical analysis revealed a positive association between gender of the respondent and an individual deciding to do flexible working hours (p-Value=0.014); thus gender is significant to choice of flexi time. The change was statistically significant at 1 % level of significance and the variable indicated the highest coefficient of 0.37; which is substantive confirmation that gender plays a significant role to the decision of whether a nurse choose to do flexi working hours or not. The coefficient translate that as more female nurses (64%) are on the duty roasters, those performing flexi hours also increase by 0.37.

The study analyzed the effects of flexi working hours on nurses who worked covering emergency and critical departments at a time the hospital was screening and testing for COVID-19. The effects of flexi hours was categorized amongst the socio-psychological, medical and family related problems that are known to be associated with flexi hours based on previous studies (Costa et al., 2004). Figure 2 present the percentages for the categories analyzed.

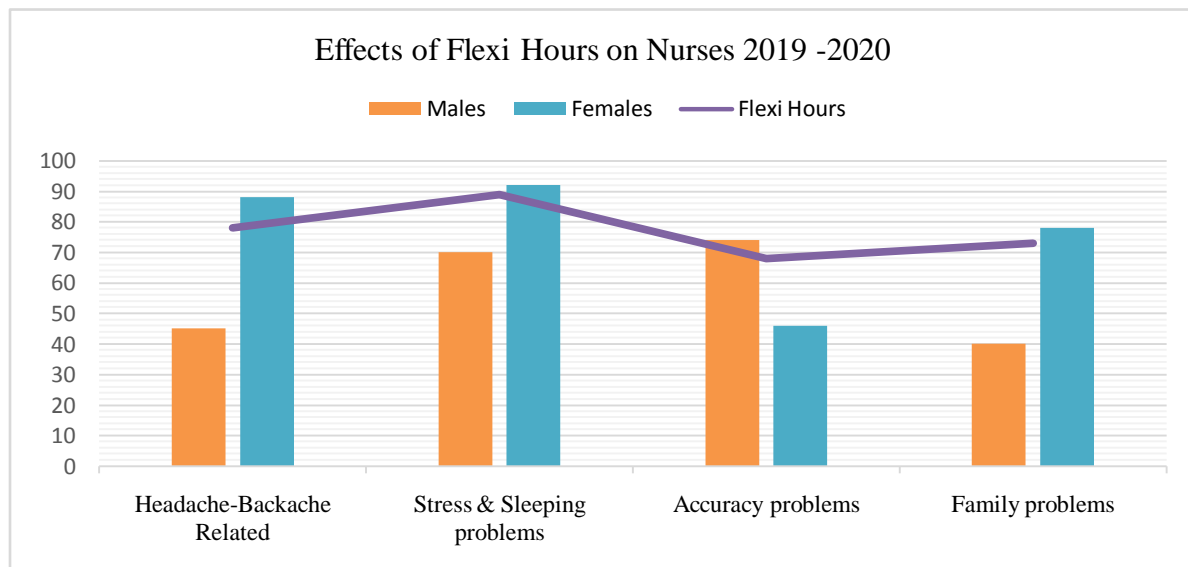


Figure 2:- Percentage Distribution on Effects of Flexi Hours for Parirenyatwa Group of Hospital Nurses 2019 - 2020.

The nursing profession is highly gendered dominated by females. The study revealed female nurses (about 92%) tend to be affected more by doing the flexi working hours than males (about 70%) when it comes to stress and sleeping problems. The distribution may suggest women tend to suffer sleeping and stress related problems as they try to balance work and family responsibilities. The data proved of those who did flexi hours, 78% females compared to 40% males experienced family related problems as effects emanating from extended working hours and compressed weekdays. The result confirms the similar findings in Maher et al. (2008) that showed the family commitments presented with more women failing to work extended hours (flexi working time schedules) due to children's extra-curricular activities. Doing flexi hours became difficult, as women had to balance household obligations.

The average age group for those doing flexible hours indicated to be clustered between 20 – <39 years range. Of the age groups covered, the distribution in Figure 2 suggests male nurses (about 74%) tend to suffer more accuracy problems from doing flexi hours while at work compared to female counterparts (about 46%). This is a serious indicator of compromised nursing clinical care due to extended working hour arrangements, thereby suggesting compromised management of the spread of COVID-19 at public hospitals accepting flexi hour arrangements. The effects of flexi working hours related to headache and backache problems was outlined further between males and females where women tend to suffer more than males while doing the same job.

Discussion:-

The manifestation of flexible working arrangements for nursing professionals in Zimbabwe has taken different folds, which seem slowly diverting from the agreed definition and purpose of flexi arrangement. The nurses have translated the flexi hours as a health worker's right issue where the employer is expected to fully provide despite the consequences it carries. Few nurses understand the framework of flexi hours due to the fact that the matter now largely depends on power struggles between those who lead employees and the government. The analysis reveal nurses have put their demands first ahead of the call to serve in the profession as evidenced by their non-compliance to drop flexi working hours, following the declaration of the State of Disaster (SI 76) and that COVID-19 was a formidable Epidemic Diseases (SI 78) by the Minister of Health and Child Care. The nurse's union (Zimbabwe Nurses Association) is now more powerful due to the introduction of flexi hours hence adjusting or flushing them out would be deemed as erosion of power hence leaders are likely to lose support from respective constituencies. Therefore, if the public hospitals are to remain effective in fighting the spread of COVID-19 amongst communities, implementation of flexi hours need to be re-framed. The issue of flexi hours should not be left as a collective bargaining issue but rather be interpreted within the essential services legal framework. Flexi time would remain relevant only if specialized departments and units are not prejudiced of continued service.

Others argue that flexi hours would be effective if there is adequate numbers of nursing personnel such that the effects of work schedules does not give less work output thus not compromising quality of nursing care. Studies revealed an increase in nursing personnel would decrease the choice to do flexible working arrangements. However, in practice increasing nursing personnel do not prove to decrease number of those doing flexi hours. Following the outbreak of COVID-19 pandemic, Parirenyatwa Group of Hospitals received additional nursing staff from the employer to cover emergency and critical departments but the additions are yet to point a reduction in those doing flexi hours. However, despite having additional nurses at institutions, institutional screening and testing levels remained very low owing to flexi working hour schedules by both nurses and doctors. In line with government directive in controlling the COVID-19 pandemic, every patient and employees working at the hospital were supposed to be tested of COVID-19. The clinical procedures of testing and screening the public and patients were also grossly affected. Despite the urgency of the call to increase numbers tested daily, Parirenyatwa Group of Hospitals could not meet the daily target at some point in time. This reflect the adverse effects of the flexi working arrangement by nursing professionals thus affecting achievement of national aspirations of fighting out COVID-19 amongst communities. Flexi working hours in Zimbabwe not only affect clinical management of COVID-19 patients, but also affected effective management of possible transmission of the virus especially dependent on screenings done at point of entry as there are no longer enough nurses to operate the screening points on a daily basis. There is need for a separate study in future to assess changes in flexi hours committed owing to the increased staff establishment for nurses.

The effective management of possible transmission of COVID-19 is dependent of massive testing of the public at a time the nation is observing the national lockdown, a measure announced in line with WHO guidelines to combat rapid transmission of the virus. However, the trend reflected that numbers tested during lockdown period fell far

below the target of testing at least 1000 people per day set by the national leadership. The Figure 3 outline the number of COVID-19 tests conducted from the National Microbiology Reference Laboratory (Harare) during the first level of the national (21 days) lock down.

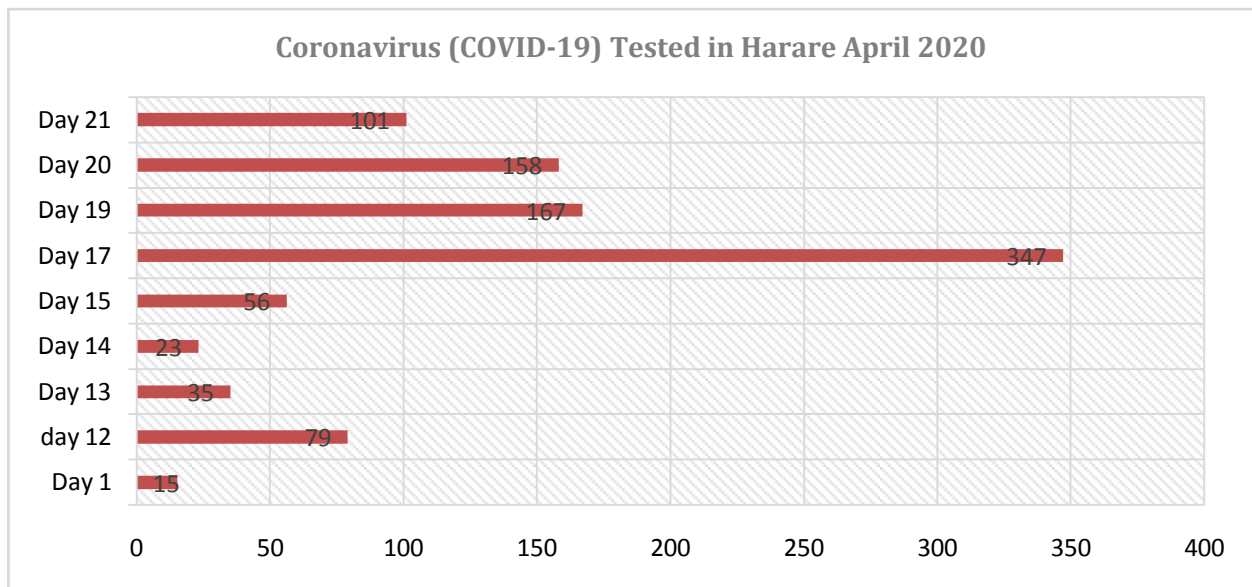


Figure 3:- COVID-19 Tests conducted from Zimbabwe National Microbiology Reference laboratory (Harare) during the first level National (21 days) lock down 2020.

Source: MoHCC Coronavirus (COVID-19) Daily Statistical Updates First level Lockdown March – April 2020

The collated results reveal that Harare in the first ‘21 days’ of the lockdown tested less than 500 people amid the capital city receiving scores of migrants travelling from outside the country. Although part of the reasons were attributed to inadequate testing kits, there is also significant argument that there was inadequate clinical staff to support effective massive screening and testing of the public for COVID-19 due to flexi working hours.

Currently nurses on flexi hours work 40% hours less their normal working time and respondents proposed to come to work one week followed by two weeks off, as a safety measure against contracting the coronavirus. The introduction of flexi hours for nursing staff affected the capacity of Parirenyatwa Group of Hospital to operate the Intensive Care Units beds working on a daily shift. For example, Parirenyatwa Group of Hospitals under normal workload schedule has 6 – 8 theaters operational every day. After the adoption of flexi hours, only three theaters were available at any given time. A hospital with a compliment of 80 Consultants who need to come to work on a daily basis have to squeeze to function at three theaters available due to the staff availability /shortage of nurses (Health Service Board Record, 2020). In addition, those discharged from theaters cannot be managed easily at wards due to affected nurse patient ratios prevailing per shift. Therefore, implementation of flexi hours presents a challenge on the public institution’s preparedness to manage COVID-19 patients should cases of those to be taken to ICU/HDU rise. In the long term, continued implementation of flexi hours by nurses would affect provision of specialty care services as specialty doctors would not be attending to their firms.

The effects of flexi hours by nurses presents more complicated effects at central level institutions compared to provinces and districts, given that lower levels do not have much specialty care. Normally at a district level, doctor’s round would require only one nurse on a roster compared to a central level where there maybe complexities arising from the observations. Flexi hours affect quality control measures and processes in the nursing profession given that there is no longer proper hand over of clinical cases amongst nurses when duty shifts occur hence affecting provision of continued care. Proper hand over of clinical cases is one of the tenants of providing quality-nursing services at any given time. Provision of quality clinical care is highly compromised especially to specialised units that could be used by COVID-19 patients. The flexi hours for nurses tend to be strenuous and most respondents viewed the arrangement as not workable. Flexi hours affect trainee student nurses as they will be required to be available longer hours especially at night shifts owing to inadequate numbers at some given times. This arrangement

is likely to support the claim by Costa et al. (2004) that flexi working hours could be associated with fatigue from long working hours. The scheduling of nurse duties may need to look at workload pressure and in the long run there is need to review the staff establishment. It is also expensive to get numbers of nurses increased compared to increasing other variables like the salaries of the existing nurses in service.

Flexi hours entail nurses spending extended working hours managing COVID-19 cases during the work shift. Coronavirus (Covid-19) is an infectious disease, whose risk of exposure would be increased if employees spent more time at work. However compared to a nurse doing normal working schedules (not flexing), she/he has less chances of committing clinical misdemeanors due to fatigue and stress as is less likely to experience negative effects of prolonged working hours. The effects of experiencing accuracy, sleeping and backache problems is likely to lead to clinical misdemeanors by nurses leading to increased mortalities in the near future.

In Zimbabwe, flexi working hours proved to contribute to increased morale amongst the nurses as they save on transportation costs and spared from effects of incapacitation. Flexi hours remain an effective tool to help employees cope up with individual demands but need proper policy and procedures framework for its implementation. Flexi hours would give employers increased performance and productivity if carefully planned and systematically implemented to support effective service delivery. Flexi hours may remain effective in low resource setting environment if nurse's safety is guaranteed amid the COVID-19 pandemic. The need for an alternative offer in respect of the "incapacitation" of the health-workers through provision of adequate remuneration; need for safety measures to limit exposure to virus by nurses; as well as improvements in the availability of PPEs is equally important to sustain implementation of a workable flexi hours schedules for the nurses in Zimbabwe. Nurses need to be properly educated through health worker occupational safety programs on effects of flexi hours so that they make informed choices balancing both the organization and individual expectations. Individuals ought to understand that flexible working schedules alone do not provide a solution to social, economic and psychological problems experienced, instead, there is need for proper investment strategies to support life personal and work demands. Long-term measures should be on strengthening specialist nursing services and the provision of adequate numbers of trained nurses from nurse training schools. An increase in the number of specialist nurses would alleviate shortages of critical and emergency departments/ units at any given time. Implementation of flexi hours need to be supported from a sound human resource for health strategy. Public health institutions need to generate data on flexi working schedules to guide evidenced policy decisions on managing effects arising from extended working hours. Such policy directives would help employees to comply with labour laws and regulations whenever disagreements arise in the interpretation of flexi by nurses. Health institutions need to learn from success countries on how they managed flexi working schedules amongst health workers during outbreak of pandemics. Such best practices would assist in benchmarking Zimbabwe's public health in organizing effective workable working schedules. Continued health research remain necessary to answer the ever-changing health sector and employee demands in resource-constrained economies and especially in eliminating coronavirus (COVID-19).

About the author(s):

Bernard Nkala, (Ph.D.) is a highly motivated and experienced Health Economist with extensive experience in health research, and development policy analysis. He is serving as the Director Performance Improvement and Development in Zimbabwe Public Health Sector and a part-time Lecturer in the Department of Economics at Bindura University of Science and Education - Zimbabwe. Dr. Bernard Nkala earned a Ph.D. in Economics majoring in health economics - policy and practice from the Institute of South South Cooperation and Development, National School of Development at Peking University, Beijing in China.

Ethics and consent to participate:

Research clearance and authorization was obtained from the employer, Zimbabwe Health Service Board. All interviewees participated on a voluntary basis, after signing an informed consent form. The right to refuse to participate or withdraw from the survey, anonymity and confidentiality were guaranteed, as was data protection. The data remained anonymous. No ethical issues arose during the study, as all the data remained anonymous with no identifying personal data.

Competing interests:

The authors declare that they have no competing interests.

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