Advanced Technology and Agent Burnout in Some Old Call Centers in Harare, Zimbabwe

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ABSTRACT

Advanced technology in old call centers includes Automatic Call Distribution (ACD), Interactive Voice Response (IVR), and call recording. The purpose of this study was to determine the existence of any relationship between three features of ACD, namely, call volume, call handling time, and call routing strategies, and burnout in call center agents.

The study used the positivist research paradigm, the quantitative research approach, and a correlational research design. Purposive sampling strategy was used to select only those call centers that predominantly handle incoming calls (inbound call centers) in Harare. The population was estimated to be about 205 agents. Simple random sampling was used to select respondents from within the call centers. A sample size of 100 respondents was used. Data was collected using a customized 21-item questionnaire that included a standardized sixteen (16)-item Oldenburg Burnout Inventory (OLBI). The questionnaire was administered using Google Forms and dispatched via WhatsApp. The data was subjected to Spearman's correlation tests using Statistical Package for Social Sciences (SPPS).

The results showed a weak relationship in both directions, between ACD features under study and agent burnout. The researcher's conclusion was that, in this study, the features of ACD alone, were not effective enough to show a statistically significant relationship between advanced technology in old call centers and burnout. There could have been some other attributes of advanced technology that were not covered in this study, but could have had an impact on the outcomes.

Keywords— advanced technology, burnout, call center, automatic call distribution, Artificial Intelligence

INTRODUCTION

Burnout is a psychological phenomenon that is related to triggers of stress at work. It is characterized by sustained emotional exhaustion, depersonalization, and reduced personal accomplishment [5]. Stress compounding factors in the context of call centers include high call volumes, repetitive and usually boring tasks, strict performance targets, and demanding customer interactions [1].Reference [1] posits that job stress and high staff turnover rates are common challenges in call centers. These challenges often result in less satisfactory quality of service that negatively affects customer experiences. Quality of service in call centers may also be affected by cultural differences and globalization From a psychological perspective, agent burnout is a mental health problem that has been linked to depression, anxiety, and physical consequences such as fatigue, insomnia, and gastronomical disturbances [1].

Call center agents who experience high levels of burnout contribute to poor performance of businesses as measured by reduced productivity, which translates to disgruntled customers, low profit margins, and loss of jobs. Emotionally drained agents are likely to record high counts of absenteeism, seek alternative employment or leave the call center industry altogether. This leads to unplanned recruitment and training costs for organizations [1]. Reference [10] reported that globally, "for the call center industry, 63% of the agents have experienced a high job burnout rate in 2022".

Reference [6] carried out a case study on factors that influence call center agent attrition in a Power Call Centre in Kenya. One of their findings was that burnout lightly influenced call center agent turnover. The current researcher could not find literature on the relationship between advanced technology and agent burnout in call centers in Zimbabwe. The closest study was by [4] who sought to find out more on the Problem of Human Capital Burnout in the Public Service of Zimbabwe.

There has been slow growth in the call center business in Zimbabwe. At the time of the current study, the equipment in some call centers in Harare was made up of largely old analogue telephone systems alongside paper and pen-based entries. The few call centers that had embraced technology use were manned by few agents. The job demands were high, yet there were few resources to support them.

Proposed solutions from numerous studies that were conducted in several countries on call center burnout revolved around managing human resources efficiently. Typically, this included managing agent workloads, shorter working hours, and job rotations. However, it appeared that little research known to the current researcher, had been done particularly in Zimbabwe, on finding a relationship between technology and burnout among call center agents. The researcher identified a gap in establishing relationships between some Automatic Call Distribution (ACD) features of call center equipment and burnout among agents in predominantly inbound call centers in Harare.

Working Definitions of key terms Advanced technology:

In this research, refers to tools, devices, or systems that use latest scientific knowledge or complex engineering and innovation to significantly increase capabilities, efficiency, or performance.

Automatic Call Distribution (ACD):

In this research, an ACD refers to a functionality of an automated telephony system that directs incoming calls to an IVR or to some agents who have specific skills such as language or experience in handling certain types of customers.

Agent**:**

In this research, an agent in a call center refers to the person that receives bulk client calls or initiates outgoing calls to clients.

Burnout is defined as a psychological syndrome that emerges as a prolonged response to chronic interpersonal stressors in the workplace [5].

Call Volume is a metric that is used to measure the number of incoming calls over a time frame such as hourly, daily, weekly, or monthly.

Call Volume Distribution: refers to the way a call center system directs incoming calls automatically to agents or to an Interactive Voice Response System. High call volumes may lead to an increase in abandoned calls, reduced customer satisfaction or increased burnout.

Call Handling Time: is the time that an agent spends with a customer on the phone.

Call Routing Strategy: is a well-thought-out plan of how an incoming call is directed to either an IVR system or a physical agent. Some call routing strategies include directing calls to an agent with particular language skills, or experience level, or based on time spent on a call by an agent.

Aim of the study

The purpose of this study was to determine any relationship between some features of ACD, namely, call volume distribution, call handling time, and call routing strategies, and agent burnout, measured by emotional exhaustion and work disengagement in some old call centers in Harare.

Hypotheses

The following three hypotheses were formulated from the objectives:

a. There is no significant relationship between call volume distribution via ACD and burnout levels among call center agents.
b. There is no significant relationship between ACD call handling time and burnout in call center agents.
c. There is no significant difference between call routing strategy and burnout in call center agents.

LITERATURE REVIEW

Conceptual Framework

Figure 1 shows the researcher's conceptual framework.

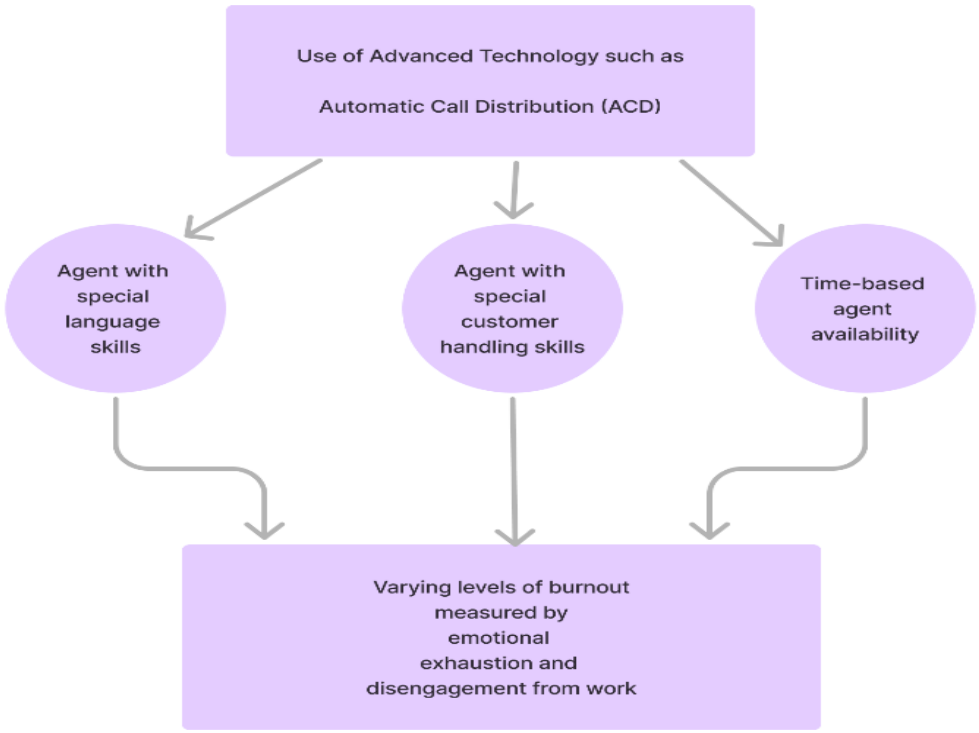

Figure 1. Conceptual diagram (Researcher's own diagram)

Theoretical framework

Job Demands-Resources (JD-R) Model:

The JD-R Model was introduced in 2001 to understand burnout. Reference [7] posits that burnout is characterized by exhaustion, mental distancing (cynicism and lack of enthusiasm), and reduced personal efficacy (doubting one's personal competence and contribution at work). The JD-R model postulates that an imbalance between job demands (for example, emotional drain, and high call volumes) and job resources (such as advanced technology) results in job-related stress.

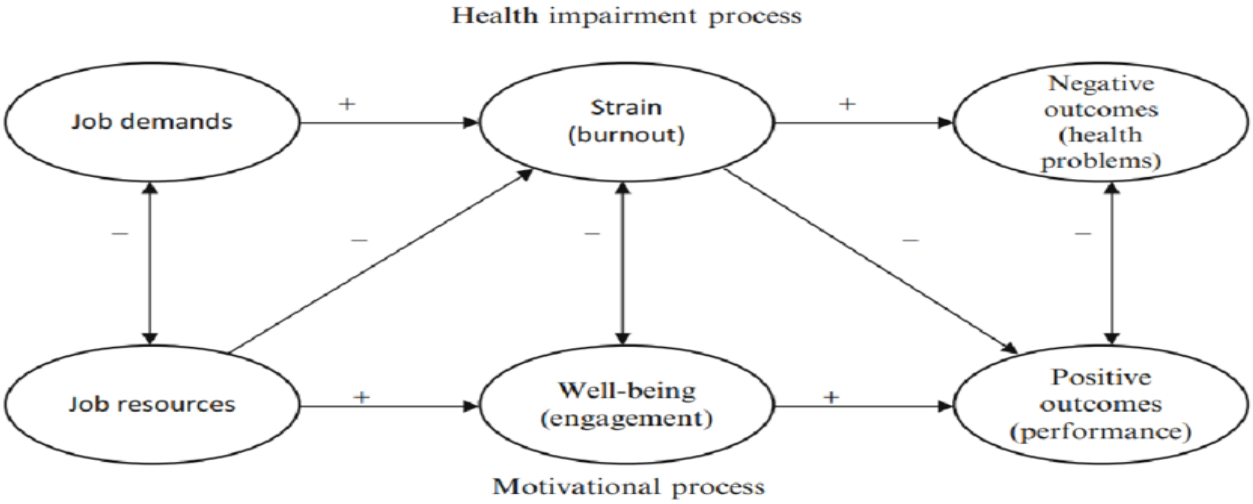

Figure **Error! No text of specified style in document.**. The Revised Job Demands-Resources Model

(Source:https://www.researchgate.net/figure/The-revised-Job-Demand-Resources-JD-R-model_fig3_364058370)

The Revised JD-R Model depicted in Figure 2 can be used to evaluate how ACD features such as call volume distribution, and call routing strategies can serve as a resource to reduce job demands on call center agents. Applying the Revised JD-R model, an increase in call volume distribution by ACD is likely to reduce the engagement of call center agents. A decrease in call volume distribution as a resource is likely to increase stress (burnout). An increase in burnout will result in negative outcomes (health problems). A decrease in health problems will yield positive outcomes (performance). An increase in engagement and a decrease in burnout will contribute to positive outcomes (performance).

If efficient call routing strategies such as forwarding an incoming call to an experienced agent are implemented, job demands are reduced, resulting in well-being and positive outcomes (performance). Inefficient call routing strategies may result in agent burnout and an increase in agent burnout may result in negative outcomes (health problems).

If call center management demands that call handling time be reduced, this can be a job demand that may increase burnout, consequently increasing negative outcomes. If the ACD is used as a job resource to manage call handling time, then an increase in call handling time may result in engagement and positive outcomes (performance).

Cognitive Load Theory:

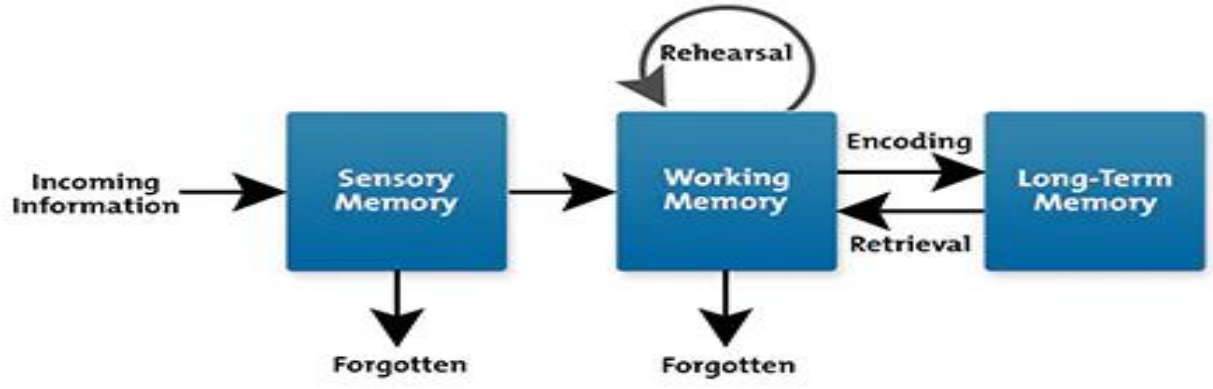

Figure 3. Information Processing Model

(Source: https://www.mindtools.com/aqxwcpa/cognitive-load-theory)

The Cognitive Load Theory (CLT) was developed on the basis of the human information processing model (IPM). The IPM posits that information processing is made up of three main parts, namely, sensory memory, working memory, and long-term memory. The sensory memory only focusses on important information at a particular moment of time as it is received from our five senses. Some of the information is discarded or deliberately forgotten [8].

The current study sought to find out a relationship between some ACD features and burnout. The study sought to establish whether increased cognitive load in the absence of automatic call distribution would persistently increase stress levels in some call center agents. It is also noted that there are other factors in the call centers that contribute to the stress process as well as the motivational process.

Empirical Review of Related Literature/Related Research Studies

Call Handling Time as a Predictor of Emotional Exhaustion:

Reference [3] carried out a study to explore the role of call handling time in predicting burnout, particularly emotional exhaustion, among call center agents. Their findings were that agents who were required to handle calls within rigid, short timeframes experienced significantly higher levels of emotional exhaustion. The agents felt overwhelmed and cognitively overwhelmed by the pressure of managing complex customer queries within strict time limits, combined with frequent monitoring by ACD systems. Reference [3] suggest that organizations need to reconsider their reliance on call handling time as a primary metric for evaluating agent performance, as it may inadvertently increase burnout.

Shortened Call Handling Times and Increased Job Stress:

Reference [9] conducted a literature review examining factors contributing to burnout among contact center employees. General burnout factors in contact center employees were identified as workload, constant pressure, and strict monitoring. The findings were that when call centers prioritized shorter call handling times to improve customer service efficiency, agents experienced higher stress levels due to the pressure to quickly resolve issues. The compounding factors to the stress were the constant tracking of call metrics by ACD systems, the repetitive nature of the work, and lack of autonomy.

METHODS

Research Approach

Quantitative research approach was used in this study. The quantitative approach was suitable in this research because it enabled the researcher to reach to many respondents that enabled generalization of the findings.

Research Design

Correlational research design was used in this study. Correlational design was chosen in this study because the researcher intended to find out whether there was a relationship between some ACD features and burnout in call center agents in some call centers in Harare. The researcher also wanted to establish the direction of the relationship. Correlational research design is a form of research that investigates the strength of the relationship between two or more variables. The researcher does not manipulate or control the variables. The direction of the relationship can either be positive or negative.

Population and Sampling

The population for this study was every call center agent working in predominantly inbound call centers in Harare. Specific data on the exact number of call centers was limited. However, it was known to the researcher that there were several call centers that provide services in a variety of industries including telecommunications, banking, retail, and gender-based violence counselling for varied populations. A conservative estimated population of 205 agents was targeted.

A sample size of 100 respondents was determined using an online sample size calculator, at 95 percent confidence level, a margin error of 5% and a population size of 205. Purposive sampling strategy was used to select only those call centers that predominantly handled incoming calls (inbound call centers) in Harare. Simple random sampling was chosen to select respondents from within the call centers.

RESULTS

Correlation tests of hypotheses

Call volume distribution via ACD and burnout levels:

To test the hypothesis that there was no significant relationship between call volume distribution via ACD and burnout levels among call center agents, data on the number of calls handled per agent was correlated with their burnout scores. Spearman's correlation coefficient, rho (ρ), was calculated and interpreted from the data.

Call handling time via ACD and burnout levels:

To test the hypothesis that there was no significant relationship between ACD call handling time and burnout in call center agents, the average call handling time was compared with burnout levels among agents. Spearman's correlation coefficient, rho (ρ), was calculated and interpreted from the data.

ACD skill-based routing burnout compared with time-based routing burnout levels:

To test the hypothesis that there was no significant difference in burnout levels between call center agents who experienced skill-based routing and those who experienced time-based routing, average burnout scores between agents exposed to the two routing methods was compared. Spearman's correlation coefficient, rho (ρ), was calculated and interpreted from the data.

Call volume distribution and burnout:

The pie chart in Figure 4 summarizes responses on the average number of calls handled by an agent per day. This number constitutes call volume directed to an agent by ACD.

Figure 4. Average number of calls answered by an agent per day

The highest percentage (35.6%) averaging between twenty-one (21) and thirty (30) calls per agent per day was recorded. This was followed by an average (26%) of between eleven (11) and twenty (20) calls per agent per day. An average (4.8%) of more than forty (40) calls per agent per day was recorded.

Hypothesis Testing

One of the objectives of the study was to determine the relationship between call volume distribution via ACD and burnout levels among call center agents. The study sought to test the following hypothesis:

Ho: There is no significant relationship between call volume distribution via ACD and burnout levels among call center agents.

The hypothesis was tested using Spearman's correlation, rho (ρ). The results are shown in Table 1.

Table 1. Summary of Spearman's Analysis of Call Volume Distribution by ACD and Agent Burnout Levels

Spearman's rho	0.157
Sig. (2-tailed)	0.12
N	100

Table 1 presents the results of a Spearman's correlation rho (ρ) analysis between two variables: "Total Burnout Score" and "What is the average number of calls that you answer per day?" (average call volume).

Interpretation

The results in Table 1 show that there is a weak positive correlation (ρ = 0.157) between the average number of calls answered per day and the total burnout score. That is, a positive value suggests that, as the number of calls answered per day increases, the total burnout score tends to increase slightly as well, but the relationship is weak.

The correlation is not statistically significant (p = 0.120) since the value of p is greater than 0.05. This suggests that there is insufficient evidence to conclude that answering more calls per day is meaningfully related to higher burnout levels in this sample. Therefore, the study fails to reject the null hypothesis Ho.

CONCLUSION

The lack of statistical significance means that, while there may be a weak association, this result could have occurred due to random variation in the data. In other words, we cannot confidently say that the observed weak positive relationship between the number of calls answered per day and burnout is different from what could occur by chance.

Call handling time and burnout

The pie chart in Figure 5 presents the average time that an agent spent on a call per day (call handling time).

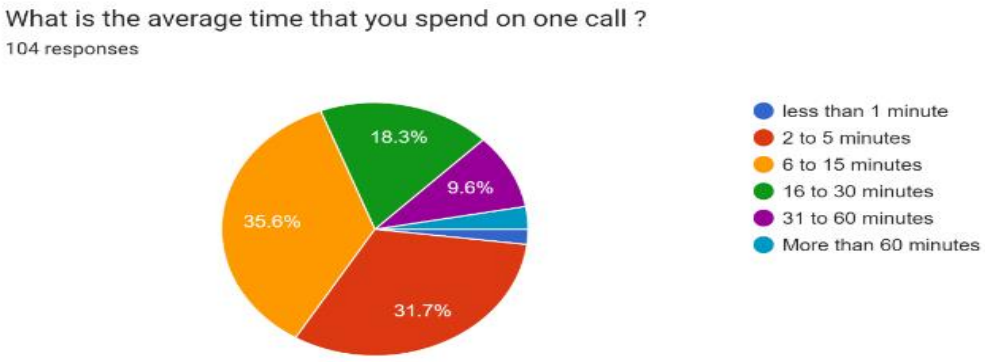

Figure 5. Average call handling time per agent

Most calls (35.6%) were handled on average time of between six (6) to fifteen (15) minutes per agent per day. A very small percentage (4.8%) of agents handled calls for an average time of more than sixty (60) minutes, and five (5) minutes or less per agent per day.

Hypothesis testing

A second objective of the study was to evaluate the relationship between ACD call handling time and burnout in call center agents.

The study sought to test the following hypothesis*:*

Ho: There is no significant relationship between ACD call handling time and burnout in call center agents.

The hypothesis was tested using Spearman's correlation, rho (ρ). The results are shown in Table 2 below.

Table 2 Summary of Spearman's Analysis of Call Handling Time via ACD and Agent Burnout Levels

Spearman's rho	-0.17
Sig. (2-tailed)	0.091
N	100

Table 2 presents the results of a Spearman's correlation rho (ρ) analysis between two variables: "Total Burnout Score" and "What is the average time that you spend on one call?" (average call handling time).

Interpretation

The Spearman's correlation coefficient is -0.170 indicating a weak negative correlation between the two variables. The negative value suggests that, as the average time spent on one call increased, the burnout score tends to decrease slightly. However, the relationship is weak.

The p-value, Significance (Sig. 2-tailed) for this correlation is 0.091 which in this case was greater than the common significance threshold of 0.05. This means that the correlation was not statistically significant.

This suggests that there was no strong evidence to support the existence of a meaningful relationship between the time spent on calls and burnout in this sample. Therefore, the study failed to reject the null hypothesis Ho.

CONCLUSION

There was a weak negative correlation (ρ = -0.170) between the average time spent on one call and the total burnout score. However, the correlation was not statistically significant (p = 0.091). This suggests that, while there was a slight tendency for longer calls to be associated with lower burnout scores, this relationship could have occurred by chance and is not statistically meaningful.

Call routing strategy and burnout

The pie chart in Figure 6 represents the distribution of four different call routing strategies used in call centers in the study.

Figure 6. Call routing Strategies used in the call centres

The results showed that the four call routing strategies were almost equally distributed in the call centers. The strategies were language skills (26.9%), agent's experience (25%), least call handling time (26%), and any available agent (22.1%).

Hypothesis testing

A third objective of the study was to examine whether call routing strategies had different effects on burnout levels in call center agents.

The study sought to test the following hypothesis:

Ho: There is no significant difference between call routing strategy and burnout in call center agents.

The hypothesis was tested using Spearman's correlation, rho (ρ). The results are shown in Table 3 below.

Table 3 Summary of Spearman's Analysis of Call Routing Strategy via ACD and Agent Burnout

Spearman's rho	0.997
Sig. (2-tailed)	0
N	100

Table 3 presents the results of a Spearman's correlation rho analysis between two variables: "Total Burnout Score" and "What call routing strategy is used at your call center?" (call routing strategy).

Interpretation

The Spearman's correlation coefficient between the Total Burnout Score and the Call Routing Strategy was 0.000 which indicates no correlation between the two variables. A correlation of 0.000 means that there is absolutely no relationship between the burnout score and the call routing strategy used.

The p-value (Sig. 2-tailed) for this correlation was 0.997 which is much greater than the common significance threshold of 0.05. This means that the correlation was not statistically significant suggesting lack of correlation between the variables. Any observed relationship was purely by chance. Therefore, the study failed to reject the null hypothesis Ho.

Conclusion

The analysis shows no relationship between the call routing strategy and burnout levels, and there is no evidence to suggest that the two variables were related in any way.

DISCUSSION

Call volume distribution and burnout

From the current study, the highest percentage of incoming calls (35.6%) were between eleven (11) and thirty (30) per agent per day. Spearman's correlation rho (ρ) between the two variables, "Total Burnout Score" and "What is the average number of calls that you answer per day?" (average call volume) was 0.157 at a significant level p = 0.120. The conclusion from the analysis was that while there may be a weak positive association between call volume and burnout, this result could have occurred due to random variation in the data.

The findings of this study concur with the findings of [9] who examined how ACD technology can impact an agent's perceived control of their work, and how this perception influences burnout levels. From their findings, indications were that agents who felt that they had more control over their call distribution and workload through customizable ACD settings experienced lower burnout rates.

The current study was somewhat at variance with the study carried out by [10] who investigated the role of high call volume in agent burnout, emphasizing the importance of recovery times between calls. The researcher's findings were that agents receiving consistently high call volumes experienced increased emotional exhaustion, which is a key component of burnout, especially so, when the ACD system did not allow for adequate recovery periods. The study by [10] also examined fluctuations in call volumes, and noted that days with unusually high call volumes led to a temporary spike in stress levels, which compounded over time when recovery periods were not sufficient.

Call handling time and burnout

The average call handling duration for about a third of the respondents (35.6%) was between six (6) to fifteen (15) minutes.

The resultant Spearman's correlation coefficient indicated a weak negative correlation between the two variables. The conclusion was that, while there was a slight tendency for longer calls to be associated with lower burnout scores, this relationship could have occurred by chance and is not statistically meaningful.

In the current study, the respondents were not asked whether there were strict instructions to handle calls within a stipulated duration of time. Perhaps that data would have shed more light on the comparison of similar studies.

Call routing strategy and burnout

The Spearman's correlation coefficient between Total Burnout Score and Call Routing Strategy indicated no correlation between the two variables. The conclusion was that there was no evidence to suggest that an ACD call routing strategy affected burnout levels of agents.

The difference between conclusions from the current study and those from existing literature could be explained by the fact that the sample of the current research was drawn from diverse call center industries. These included ICT services, retail, and counselling services. These industries have different work policies and client bases.

CONCLUSION

The weak correlation between ACD and agent burnout in the study means that an increase in the call volume from ACD did not statistically significantly increase agent burnout. Similarly, a weak negative correlation between call handling time and burnout meant that the long duration of calls did not statistically reduce agent burnout. Also, negligible correlation between ACD call routing strategy and burnout meant that the different ACD call routing strategies had no effect on agent burnout levels in the study. The implication of the results is that the ACD systems in the study might not have been properly equipped with up-to-date advanced software and possibly not optimally configured. The diversity of the sectors in the study might have contributed in confounding the results in that, whereas the ICT and retail sectors demand that call center agents attend to customer queries as quickly as possible, counselling services require that an agent spends comparatively more time with clients. The researcher's conclusion is that, in this study, the features of ACD alone, were not effective enough to show a statistically significant relationship between advanced technology in old call centers and burnout.

Ethical Considerations

Ethical Approval:

I confirm that ethical approval was obtained for research involving human subjects.

Conflict of Interest:

There are no potential conflicts of interest in this research which was carried out purely for academic

purposes.

Data Availability Statement:

Data for this research is not publicly available. The respondents and their employees requested that the data be kept private.

REFERENCES

1. Rod, M., & Ashill, N. J. (2013). The impact of call centre stressors on inbound and outbound call-centre agent burnout. Managing Service Quality: An International Journal, 23(3), 245–264. https://doi.org/10.1108/09604521311312255
2. Demerouti, E. (2024) Burnout: a comprehensive review. Z. Arb. Wiss. **78**, 492–504 https://doi.org/10.1007/s41449-024-00452-3
3. Salvagioni, D. A. J., Melanda, F. N., Mesas, A. E., González, A. D., Gabani, F. L., & de Andrade, S. M. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. PLOS ONE, 12(10), e0185781. https://doi.org/10.1371/journal.pone.0185781
4. [Kepekepe, M., Bhebhe, T.B., & Karedza, G. (2017). An Investigation into the Problem of Human Capital Burnout in the Public Service of Zimbabwe: A Case of Secondary School Teachers in Marondera District, Mashonaland East Province. IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 19, Issue 2. Ver. III (Feb. 2017), PP 99-114 www.iosrjournals.org DOI: 10.9790/487X-19020399114 www.iosrjournals.org
5. Maslach, C., & Leiter, M. P. (2016). Burnout. Stress: Concepts, Cognition, Emotion, and Behaviour: Handbook of Stress, 351–357. https://doi.org/10.1016/B978-0-12-800951-2.00044-3
6. Mwendwa, L., and Gitonga, A.K. (2017). Factors Influencing Call Centre Agent Attrition: A Case of Kenya Power Call Centre. International Academic Journal of Information Sciences and Project Management. Volume 2, Issue 1, pp. 415-434 415. Retrieved 19 July 2024 from https://www.iajournals.org/articles/iajispm v2 i1 415 434.pdf
7. Chaufeli, W.B. (2017). Applying the Job Demands-Resources model: A 'how to' guide to measuring and tackling work engagement and burnout. Organizational Dynamics (2017) 46, 120—132. Elsevier. Retrieved 12 August 2024, from https://www.wilmarschaufeli.nl/publications/Schaufeli/476.pdf
8. Sweller, J. (2010). Cognitive load theory: Recent theoretical advances. In J. L. Plass, R. Moreno, & R. Brünken (Eds.), Cognitive load theory (pp. 29–47). Cambridge University Press. https://doi.org/10.1017/CBO9780511844744.004
9. Fulaedzah, I. A. (2022, January 20). Burnout on contact center: A literature review. Interdisciplinary Social Studies, Vol. 1(4), 383–402. https://doi.org/10.55324/iss.v1i4.82
10. SQM Group. (2023, February 24). Call center burnout problem: Defining, measuring, and tips for recovering from it. https://www.sqmgroup.com/resources/library/blog/call-center-burnout-rate-problem