

Analysis of quality of life of recyclable-material scavengers during the COVID-19 pandemic

Análise da qualidade de vida dos catadores de materiais recicláveis durante a pandemia de COVID-19

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ABSTRACT: Work conditions faced by those who handle waste and who are exposed to physical and psycho-social risks are factors influencing the quality of life of recyclable-material scavengers. Dangers deriving from the emergence of new, highly disseminated, epidemics/pandemics, such as COVID-19, add to adversities faced by scavengers. Accordingly, the aim of the present study is to assess the quality of recyclable-material scavengers during the COVID-19 pandemic in Ponta Grossa County, Paraná State. The sample comprised 83 participants linked to scavengers' association in this county. Scavengers answered the questionnaire about quality of life developed by the World Health Organization, also known as *Whoqol-bref*. Findings in the current study have shown that mean quality of life in *Whoqol-bref* reached 72.0 points (0-100 scale). The 'environment' domain recorded 63.5 points and the "social relationships" one scored 71.0 points. These were the domains accounting for the lowest mean scores. The 'physical' and 'psychological' domains recorded the highest scores, 78.6 and 74.4, respectively. Based on this finding, it was possible observing the need to keep on going and to develop further studies about scavengers' health to provide them with treatments linked to psycho-social issues, mainly when they live under adverse conditions, rather than just as the COVID-19 pandemic, but under other risks faced by these professionals in their work environments.

Keywords: Waste management, quality of life, *whoqol-bref*, COVID-19.

RESUMO: As condições de trabalho no manejo dos resíduos e a exposição a riscos físicos e psicossociais, são fatores que influenciam diretamente na qualidade de vida dos catadores de materiais recicláveis. Os perigos originados a partir do surgimento de novas epidemias/pandemias amplamente disseminadas, como é o caso da COVID-19, somam-se a essas adversidades na vida dos catadores. Diante desse contexto, o presente trabalho objetivou identificar a qualidade de vida dos catadores de materiais recicláveis, no período da pandemia da COVID-19, no município de Ponta Grossa-PR. Para o desenvolvimento da pesquisa foi utilizado uma amostra composta por 83 participantes, vinculados a associações de catadores do município. Os catadores responderam um questionário referente à qualidade de vida, da Organização Mundial de Saúde, *Whoqol-bref*. Entre os achados do estudo, foi possível observar que a média da qualidade de vida geral na avaliação do *Whoqol-bref* foi de 72,0 pontos (escala de zero a 100,0). O domínio "meio ambiente" foi de 63,5 pontos e domínio "relações sociais" de 71,0 pontos, sendo os que apresentaram menor escore médio. Os domínios "físico" e "psicológico" tiveram os maiores escores, com 78,6 e 74,4 pontos, respectivamente. A partir desse diagnóstico, é possível constatar a necessidade da continuidade e desenvolvimento de novos estudos referentes a saúde do catador para a realização de tratamentos relativos as questões psicossociais, sobretudo em situações adversas, não somente como a pandemia de COVID-19, mas vários outros riscos a que esses profissionais frequentemente são expostos em seus ambientes de trabalho.

Palavras-chave: Gestão de resíduos, qualidade de vida, *whoqol-bref*, COVID-19.

INTRODUCTION

Population growth, in addition to contemporary society's consumption behaviors, has impact on waste generation increase, and it became a worrisome factor about care to the environment and to the populations' health conditions. Domestic Solid Waste (DSW) and waste deriving from urban cleaning services form the so-called Urban Solid Waste (USW). The high generation of such waste type imposes high costs to the public treasure and leads to a whole variety of negative effects linked to lack of urban spaces aimed at its proper final destination. Thus, environmental and health impacts associated with increased waste generation and destination are among the most concerning claims by environmental experts and public managers (TAKAYANAGUI, 2004). One of the greatest challengers caused by high waste generation lies on developing efficient solutions to its best destination (JACOBI; BESEN, 2011).

Law n. 12.305 was enacted in Brazil to preserve, improve and recover environmental quality. It is known as National Solid Waste Policy (PNRS, in Portuguese), which was regulated by Decree, n. 10.936 that provides on how to proceed with the integrated management of solid waste types (BRASIL, 2010; 2022). This law established important instruments and guidelines to cope with the mandatory waste-management hierarchy. In priority order, one has the non-generation, reduction, reuse, waste recycling/treatment factors, which are followed by waste disposal in sanitary landfills. It is consensus that some of these priorities are only possible to be achieved through operations based on selective collection. When it comes to managerial actions, it is imperative entering the selective-collection concept, which concerns proper waste separation, depending on its composition, which is an essential factor for achieving an efficient solid waste management (BRASIL, 2010).

Among so many environmental advantages of selective collection, one can highlight reducing virgin raw materials' extraction, secondary raw materials' valuing and natural-resources' saving. Yet, it is important emphasizing its great environmental advantage, namely: decreased amount of waste that ends up being discharged as environmental liability in sanitary landfills (WAITE, 1995).

Accordingly, it is paramount highlighting the selective collection model developed by scavengers and the separation method applied to collected materials in sorting centers where several refining processes are carried out. These materials are separated based on category, pressed or ground, baled and packed. Selective collection processes in Brazil went through several changes in the last few years, after the scavenger profession was regulated. It is so, because of investments made by the federal government and because of public policies focused on this modality. However, this evolution process remains unseen at municipal and state scope (BESEN, 2011).

The literature often presents issues related to these professionals' unhealthy labor conditions, and it discloses many problems resulting from risks, diseases and accidents caused by them. Although one can observe several damages to scavengers' health and suffering due to their work environment in Latin American countries, there is shortage of data about diseases linked to recyclable-material scavengers' work - there is no systematic information about this topic (FERREIRA, 1997; PORTO, 2000). The scarcity of data about these diseases justifies the need of carrying out further studies associated with this working class, which is often marginalized by society. This scenario leads to insecurity

and discomfort in their daily working conditions, a fact that has straight impact on their quality of life.

Accordingly, the COVID-19 pandemic triggered the world concern with its direct and indirect implications in activities developed by different professionals. According to Santiago and Barros (2020), the COVID-19 pandemic only evidenced the reality observed in a society marked by political and cultural stress, great economic inequality and by a serious social-injustice panorama. Actually, most of the time, these issues mostly affect the vulnerable ones.

Most of the population did not properly separate waste during the COVID-19 pandemic and it has influenced contagion risks faced by recyclable-material scavengers due to daily contact with several waste types that, in their turn, represented a potential infection pathway (TAKAYANAGUI; SANTOS; SOUZA, 2020). This scenario reinforced the difficulties faced by scavengers and the stress by these professionals who compose a vulnerable segment in society. It is necessary implementing actions focused on their safety, when it comes to work and health conditions, and to quality of life.

The quality-of-life topic has been a priority in several study fields, such as medicine, psychology, economy, history, geography, sociology and philosophy. The concepts and definitions of quality of life are quite divergent when it comes to development methods used for evaluation purposes. The priority given to this study type aims at the search for best understanding and assessing new solutions to help individuals live with dignity, as well as brings consistent basis to the proper elaboration of public policies and health treatments to this population (FARQUHAR, 1995).

According to Ziaei et al. (2019), several studies have assessed topics linked to challenges posed by collection systems and to scavengers' physical and psychological issues, in separate, and it led to a deviation, because these are intertwined realities. In order to improve the performance of any scavenge-work system, one must take into account the main sources of this system, which are workers' physical and psycho-social demands, because these aspects are closely related to their quality of life.

With respect to quality-of-life metrics, there are several evaluation forms, and there is no 'perfect' measurement to be used as unique reference (FARQUHAR, 1995). It is important taking into consideration that instruments developed to assess quality of life change depending on research aims. *World Health Organization Quality of Life-100 (Whoqol-100)* is an instrument developed by the World Health Organization (WHO) to assess quality of life – it is the most outstanding instrument used for this purpose, nowadays. It allows researchers to find participants' main quality of life features given its measurements, which approach general aspects applicable to different groups and cultures (FLECK, 2000). However, due to the need of having a shorter but, yet, reliable instrument, the *Whoqol-100* instrument gained a new version, the so-called *World Health Organization Quality of Life-bref (Whoqol-bref)*, which enables comparing healthy populations to those carrying some sort of health condition (FLECK et al., 2000).

The interesting part of this instrument's shorter version lies on the fact that it presents psychometric specificities in comparison to its long version. Dantas, Sawada and Malerbo (2003) identified that *Whoqol-bref* also has another advantage: it allows comparing results among different populations. It is so, because its validation was carried out equally in different countries and because it also provides presentations for different cultures.

Therefore, the aim of the present study was to diagnose the quality of life of recyclable-material scavengers in Ponta Grossa County, Paraná State, during the COVID-19 pandemic, based on analyzing indicators linked to the ‘physical’, ‘psychological’, ‘social’ and ‘environmental’ domains.

METHODOLOGICAL PROCEDURES

The study followed a quantitative, descriptive, exploratory approach to assess the quality of life of recyclable-material scavengers due the problems they faced during the COVID-19 pandemic, in Ponta Grossa County, Paraná State.

Ponta Grossa County is located in Campos Gerais region, Paraná State, and its territory covers 2,054.732 km². Based on the Brazilian Institute of Geography and Statistics (IBGE), this county houses 311,611 mil inhabitants (IBGE, 2010).

Data collection took place from November 2020 to September 2021. The sample comprised 83 scavengers linked to four recyclable-material scavengers’ associations in Ponta Grossa. Scavengers were individually informed about the study, or this information was disclosed to small groups of scavengers. The approach to invite participants to join the study followed the same procedure in all addressed associations.

Quality of life diagnosis instrument

The instrument known as *Whoqol-bref* was chosen to assess scavengers’ quality of life. It counts on 26 questions – 2 general ones (one about general quality of life’s evaluation and another about satisfaction with current health condition) and 24 about the physical, psychological, social and environmental domains. Each domain had its own specific features (FLECK, 2000).

Whoqol-bref questions are scored based on Likert type scale, based on the following analyses: intensity (not at all – extremely), capacity (not at all – fully), frequency (never – always) and evaluation (very dissatisfactory – very satisfactory; very bad – very good). All questions in the *Whoqol-bref* instrument recorded positive scores in the present research, i.e., the higher the score, the better the quality of life. Questions that have taken the opposite direction were adjusted at the time to assess the domains. Thus, questions with negative structure were turned into questions with positive structure (WHO, 2012).

Data analysis

Results recorded based on *Whoqol-bref* application were organized into spreadsheet and analyzed based on descriptive statistics. This analysis took place according to items approached in the instrument. It was done to improve data visualization. Central trends and dispersion measurements were calculated to analyze the domains. The two general questions, which did not regard the domains, were also treated based on frequency and rate statistical measurements.

Likert scale (1-5 points) was used to assess quality of life’s final scores. Besides, domains’ final results were corrected to the 0-100 scale, and it allowed comparing scores to the original *Whoqol-100* version. It also made it easier to visualize quality of life perceptions.

Ethical aspects

It is important highlighting that the present project was submitted to the Research Ethics Committee of State University of the Midwest, based on Resolution n. 466 and on Resolution n. 510. All the ethical demands provided on the legislation in force for studies in the human health field were met, based on Opinion n. 4.464.822 (BRASIL, 2012; 2016).

RESULTS AND DISCUSSION

Scavengers' quality of life approach is the aim of the present study, since their professional activity, somehow, affects several human domains, and it has straight impact on this population's quality of life. Results recorded for the general questions and for the questions linked to the assessed domains will be herein presented. They are based on data collected through research-instrument application.

Table 1 introduces frequency results and the rates of answers to the two general quality-of-life questions. Results recorded for the other questions are addressed in separate.

Table 1. Frequencies (f) and rates (%) recorded for the general questions (Q1 and Q2).

Question	Possible answers	R (%)
Q1 "How would you evaluate your quality of life?"	1- Very bad	1 (1.2)
	2- Bad	3 (3.6)
	3- Neither bad nor good	19 (22.8)
	4- Good	45 (54.2)
	5- Very good	15 (18.0)
Q2 "How satisfied are you with your health?"	1- Very dissatisfied	1 (1.2)
	2- Dissatisfied	3 (3.6)
	3- Neither satisfied nor dissatisfied	17 (20.4)
	4- Satisfied	38 (45.7)
	5- Very satisfied	24 (28.9)

Based on the recorded results, most scavengers (72.2%) self-declare their health condition as good or very good. One in every two scavengers have stated to be satisfied or very satisfied with their health condition (74.7%). These results proved the sense that quality of life is often related to health condition, i.e., the smaller the number of health issues, the higher one's satisfaction with its life (COSTA, 2016).

Table 2 introduces the central trends and dispersion scores of quality-of-life evaluation based on the 1-5 and 0-100 scales. General quality of life, based on the 0-100 scale, recorded 72 points, on average, and the assessed domains 'social relationships' and 'environment' were the ones presenting bigger differences from the other domains.

Table 2. Means and standard deviations of scores recorded for the quality-of-life domains.

Domains and quality of life questions	Mean (standard deviation)*	Mean (standard deviation)**
General quality of life	3.6 (1.1)	72.0 (22.5)
Q1	3.8 (0.8)	76.6 (16.6)
Q2	3.9 (0.8)	79.5 (17.2)
Physical domain	3.9 (0.9)	78.5 (19.8)
Psychological domain	3.7 (1.0)	74.4 (21.5)
Social relationships domain	3.5 (1.2)	70.8 (25.5)
Environment domain	3.1 (1.1)	63.5 (22.7)

* Scores 1 – 5. ** Scores 0 – 100.

Mean score of 72.0 points recorded for scavengers' quality of life in Ponta Grossa County, Paraná State, can be considered good. The herein observed result was confirmed by the chosen instruments' methodology, according to which, the higher the score, the better the quality of life. Other studies focused on evaluating the general quality of life of scavengers' samples by comparing scores recorded for different domains were not found in the literature. However, some studies shine light on scavengers' positive perception of quality of life (COSTA, 2016; COSTA; BARBOSA, 2021).

Based on the present results, there is greater disparity between domains 'environment' and 'social relationships'. These data meet the research by Jesus et al. (2012), according to whom recyclable-material scavengers' perception about their quality of life also pointed out the worst scores to domains 'environment' and 'social relationships'.

Domain 'environment' accounted for the lowest score (63.5 points) in the 0-100 scale. Results recorded for domain 'environment' have shown that scavengers are satisfied with their housing conditions (67.05) and with their transportation means (58.0%). They also evidenced that 49.0% of participants enjoy life and that 58.0% of them see their lives as safe. The question on economic issues, although showing neutral position by participants (42.0%), also showed that they are satisfied with their income - 39.0% of scavengers assume to not have financial autonomy to meet all their needs. This behavior recalls the sense of accommodation and acceptance towards their own lives, since they do not have much ambition or do not seek better financial perspectives for their lives.

With respect to leisure, 35.0% of participants showed that this factor does not interfere with quality of life. Similarly, the physical environment was also a neutral factor for most interviewees (41.0%), i.e., weather conditions, noise and pollution do not positively or negatively interfere with their lives. Although the work environment linked to waste handling is most of the time unhealthy, according to scavengers participating in the present research, such an environment does not cause any change in their well-being. As for access to health services, the neutral answers have also prevailed (42.0%), and it points towards the fact that this requirement does not have positive or negative influence on their quality of life.

The discussion about some of these indicators allowed observing the low score recorded for domain 'environment'. Actually, 28.0% of scavengers declared that the environment they live in is hostile and that, although they have herein reported to be happy with their income, it is clear that this sector accounts for low incomes. Other studies have already reported monthly income lower than the minimum wage in this sector (ALENCAR;

CARDOSO; ANTUNES, 2009; LAZZARI; REIS, 2011; CASTILHOS JUNIOR et al., 2013; NOGUEIRA; SILVEIRA; FERNANDES, 2017). This finding points out that, although scavengers are thankful for their income, such a low income affects their quality of life.

Domain 'social relationships' was the second one accounting for the lowest scores (70.8), and it proves that such a requirement affects their quality of life. Participants have shown to be happy with their social relationships (70.0%), with the support they get from friends, relatives and workmates (70.0%), and with their sexual lives (64.0%). Other studies also showed this population's satisfaction with their work, because they see a good conviviality environment, besides being a material growth sector (COELHO et al., 2016; TEIXEIRA, 2015).

Although the 'social relationships' domain is the second one with the lowest scoring, scavengers, satisfaction with their personal relationships and with the support they get from friends is outstanding. This finding shows that 'social support' is the factor capable of reducing quality of life in this particular domain. This finding is explained by the constant discrimination reported by scavengers. Actually, they have shown negative perception about the treatment and support they get from society (SIDEGUM et al., 2015; AMATE; CARNEIRO; HOEFEL, 2017).

As for the other domains, the 'physical' and 'psychological' ones - which encompass the pain and discomfort, energy and fatigue, sleep and rest, medication dependence, positive feelings, work skills, self-esteem, body image, negative feelings and spirituality indicators, among others - were those accounting for the highest scores. The 'physical' domain recorded the highest score (78.6 points); it was followed by the 'psychological' domain (74.4 points).

Results in the present study differ from those in the study about recyclable-material scavengers' quality of life in Ponta Grossa carried out by Lamp (2012), who found barriers related to quality of life linked to this population's physical and psychological health. Assumably, many changes will happen in the work and lives of scavengers within 10 years from now; therefore, these domains tend to get better scores in the future.

The physical domain influences scavengers' quality of life because questions about it are often well scored by them. Participants report to have good and very good mobility (77.0%), and to be satisfied or very satisfied with their working skills (83.0%), and with their ability to perform daily activities (80.0%), as well as with their sleep (58.0%). They also showed to have enough energy for daily life activities (63.0%). When these variables point towards a positive direction, they explain why the physical domain recorded high scores based on scavengers' evaluation. They believe that this is a positive condition for quality of life. In fact, according to scavengers, their good physical conditions present significant results, because the body responds for most of their work, which, although exhausting, is not seen by them as a negative factor. Thus, having good mobility and energy are indicatives of good ability to work and to fulfil daily activities.

Variables that comprise the physical domain also measure physical pain and the need of any health treatment. These elements had great interference with quality of life (63.0% and 72.0%, respectively). Physical pain results and the need of any health treatment are in compliance with results in the study by Alencar, Cardoso and Antunes (2009) about the work conditions and health-related symptoms recorded for recyclable-material scavengers in Curitiba City. They found that most scavengers reported skeletal muscle pain, physical fatigue, headaches, indigestion, among other physical illnesses. All

the recorded health issues were perceived by these researchers as some of the main stressing situations deriving from scavengers' work activities.

Although scavengers report the need of some sort of treatment for physical issues, lack of access to health services and time shortage due to long work shifts are factors somehow stopping these workers from seeking the necessary health treatments (ROZMAN et al., 2010). Results recorded for these questions lead to the interpretation that these diseases and physical pain reduce the well-being of this population.

Questions linked to the 'psychological' domain must be observed, because this domain regards features about individuals' sense of existence. The psychological domain in the present study had positive action in quality of life. Accordingly, the present results have shown that life makes sense for 83.0% of participants, and 71.0% of them are happy with themselves, yet, information they need on a daily basis is often available to them (52.0%).

The fact that, according to scavengers, the physical environment does not influence their quality of life also explains another finding, namely: their perception about concentration to work. Results have shown that they got to concentrate in their daily activities (72.0%), although they work in noisy and crowded places. Concentration means attention on a specific activity. Thus, one can assume that scavengers get to focus on their activities although they deal with adversities posed by the physical environment.

Another research has related the 'psychological', 'social relationships' and 'environment' domains to demographic variables. It has shown that living on the streets, being young, having low schooling and living without a companion are the main factors having negative impact on scavengers' lives (JESUS et al., 2012). Although the current study did not make such an association, one can infer that some of the reasons for the good scores recorded for these questions lied on the fact that the assessed group comprised a larger number of adult individuals whose life perspectives are well-defined. It leads to the reasoning that they have already accepted their current life and that most participants have their own houses.

Based on the present results, most scavengers well accept their physical looks (65.0%). The physical looks aspect brought along an intriguing result if one takes into account scavengers' understanding about the treatment they get from society and the exclusion process they use to face. This result opens room for the understanding about how others see them, although, according to them, it is an unpleasant element that does not influence the way they see themselves, because they recorded good physical-acceptance scores.

With respect to the frequency of negative feelings, such as bad mood, despair, anxiety and depression, participants declared to have never had such feelings (76.0%). This finding justifies the veracity of having the psychological domain accounting for the second best scoring by scavengers when it comes to quality of life.

According to Sadir, Bignotto and Lipp (2010), the study about stress and quality of life linked to other variables, such as professional occupation, showed that individuals' quality of life was impaired by negative feelings. Another study about quality of life carried out by Lipp (2005) regarded stress at work, and it showed that these feelings had negative influence on participants, because they caused a whole series of adversities, such as lower productivity, lack of motivation, hard time developing personal relationships, physical diseases, depression, anxiety and personal unhappiness. Actually, according to the present results, research participants believe that these factors do not have much

influence on their quality of life. The fact that scavengers did not show feelings of depression, anxiety and bad mood, so often, may substantiate the good scores recorded for quality of life based on scavengers' perceptions (72.0 points).

According to Arantes (2015), scavengers' psychic health in comparison to their work shows relevant fluctuations between positive and negative effects. Based on Braga, Lima and Maciel (2015), psychological effects related to working with waste collection presents different meanings in the life of this population. Moreover, they present ambiguous order, just as scavengers' speeches that, sometimes, describe good fortune and, sometimes, adversities. Thus, one can observe that this topic has hybrid psychological positive and negative interference with scavengers, due to their work with recyclables.

Some authors have negative opinion about it, because they consider that psychological matters are those mostly affecting quality of life. On the other hand, other researchers believe that scavengers have a quite positive position towards emotional phenomena caused by work (JESUS et al., 2012; LAMP, 2012). However, according to the present study, scavengers present a positive psychological frame and good perception about their general quality of life, which recorded a larger number of positive than of negative factors.

CONCLUSION

The present research allowed analyzing matters linked to 'physical', 'psychological', 'social' and 'environmental' domains to identify the variables positively and negatively influencing recyclable-material scavengers' quality of life in Pota Grossa County, Paraná State.

Regardless of the faced difficulties, of unhealthy work conditions and risks inherent to their profession, scavengers record good scores for self-perception about their general quality of life. However, it was also possible observing divergences in these perceptions, so one can assume that scavengers accepted or got used to the conditions they live under. This finding corroborates the statement, according to which, quality of life reflects the perception by each individual, the context it is inserted in and its own experiences. Overall, results in the current study have shown positive indicators. Nevertheless, indicators linked to domains accounting for the highest disparities observed between the 'environment' and 'social relationships' domains must be prioritized when one thinks about propositions to improve these professionals' quality of life.

The labor activity reflects on recyclable-material scavengers' quality of life, since it gives them an income, food and housing, as well as exposes this population to unhealthy environments, to precarious work conditions and to constant disposal by society. Several studies presented results associated with physical issues, but the psycho-social matters are little addressed by researchers. Therefore, hopefully, results in the present study will trigger the debate on the quality of life and on the promotion of actions focused on these professionals' work.

It is important highlighting that, at times of pandemics, such as the COVID-19 one, when waste is badly managed, it becomes a major risk factor for the population. Thus, scavengers' work become much more relevant and it reinforces the importance of a category to be acknowledged as profession, rather than just as technical and economic support for waste management. This profession must be acknowledged because its work is developed by people who find their survival and social inclusion in this activity.

Accordingly, hopefully, the present study will contribute to the search for better work conditions to them, given the new emerging diseases that might affect our society, and to provide recyclable-material scavengers' with greater social insertion and valuing.

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Received on: 09/14/2023

Approved on: 12/18/2023