Urban Agriculture and its Contribution to Household Food and Nutrition Security in Zimbabwe

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Abstract

The study was aimed at investigating the impact of urban agriculture on food and nutrition security in urban households in Zimbabwe. It was based on seconday analysis of data collected from 13 421 urban households during the Urban Livelihoods Assessment conducted by the Zimbabwe Livelihoods Assessment Committee in January 2023. The results show that maize (47.3%) was the most grown crop by urban households followed by leafy vegetables (28.8%). A wide diversity of crops such as cereals tubers, leafy vegetables, and bulbs were being grown. The study revealed that urban agriculture was associated with a decrease in consumption and livelihoods coping strategies, increased household dietary diversity and an increase in consumption of vitamin A rich foods, indicating that practicing households were more food secure. More so, the study showed that age of household head, income status, health status of household head, larger household size, and geographical location were the determinants for practicing urban households. In addition, lack of access to land (71.7%) followed by lack of interest (7.5%) were the main barriers for practicing urban agriculture. In conclusion urban agriculture appears to be decreasing household food insecurity and improving diet quality. Findings from this study are important in the context of developing countries, where rural – urban migration is common. We recommend supportive by laws and policies that increase household access to public land and coordinated agricultural interventions in urban areas.

Keywords: Urban Agriculture; Food Security; Nutrition Security; Zimbabwe

Introduction

Issues of food security and nutrition have wide reaching implications for people and their environments, particularly in low and middle-income countries [1]. Food and nutrition insecurity in many African countries has often been perceived as a rural rather than urban phenomenon [2]. In Zimbabwe, the majority (61.4%) of the population in the country live in the rural areas [3], and as a result, urban food security issues have been missing on the national policy agenda [4]. One proposed solution to food insecurity in urban areas is urban agriculture, which has been widely upheld as a solution to the food-crisis facing increasingly metropolitan populations [1]. In the last decade, urban agriculture has been intensifying as households seek to adapt to the unstable economic environment, which is threatening the sustainability of urban livelihoods [5,6].

Orsini., *et al.* [7] defines urban agriculture as any agricultural activity which grows, raises, processes, and distributes agricultural products regardless of land size and number of human resources within the cities and towns. In this paper, urban agriculture is used to typify crop farming done through community gardens, allotments, open spaces, and backyard gardens. The practice of urban agriculture has gained importance due to the rising rate of urban population in many developing countries [4]. The trend towards urban agriculture across its multiple forms, i.e., household gardens, community gardens, larger commercial farms, is motivated by a wide range of assumed benefits [8,9]. Urban agriculture is a possible livelihood diversification strategy, which can potentially alleviate urban food insecurity for low-income communities [2]. Smart., *et al.* [10] contend that in cases of extreme economic hardship and crisis, urban agriculture plays an important role in promoting

household adaptation and coping. This ascribes to the resilience theory, which stipulates that the lack of an economic and employment mainstay is a catalyst for alternate livelihood strategies [10,11]. Urban households in Zimbabwe's major cities have been reported to be intensifying urban agriculture, with households growing different crops and rearing chickens, ducks, and pigeons for both subsistence and commercial purposes [5,12,13].

Studies from both developed and developing countries [12,14-17] revealed that urban agricultural activities can contribute to the availability of fresh and nutritious food items, reduction in food expenditure on food bills, having direct access to varieties of food products as well as urban waste recycling, pollution and sustainability [5]. According to Stewart., *et al*. [1], urban agriculture increases food security through two main pathways: improved access to food, and increased income. The ability to produce food from one's backyard can contribute to food availability in the home both in terms of quantity and quality. Concerning diet quality, animal husbandry is believed to provide an important source of animal protein, which is commonly limited in poor households' diets due to income constraints [18].

Unfortunately, despite the positive prospects it proffers, urban agriculture has largely not been tolerated in most African cities as it is often viewed as a rural activity, which detracts from the modern city image [19]. In addition, despite the evident benefits of urban agriculture to the farmers, its potential is constrained by a complex of factors that include land tenure insecurity, erratic water access, small plot sizes, inadequate capital for optimising plot productivity and ambivalent application of urban land-use laws [17]. Although evidence shows that urban agriculture has the potential to improve urban food and nutrition security, the available evidence in literature is limited. As a result, there is very little reliable knowledge on the impact on food and nutrition security indicators. It is also uncertain as to the characteristics of households practicing urban agriculture. This paper seeks to provide a solid evidence base for policy makers and practitioners on the impact of urban agriculture on food and nutrition security, using a case study of Zimbabwe. Specifically, this study answers the following questions: (i) what percentage of urban households practice urban agriculture in Zimbabwe? (ii) which type of urban agriculture (crops or livestock) is being practiced? and (iii) what is the impact of urban agriculture on food and nutrition security in urban households in Zimbabwe?

Methodology

This paper is based on secondary analysis of existing data from the 2023 Zimbabwe Urban Livelihoods Survey conducted by the Zimbabwe Livelihoods Assessment Committee (ZimLAC). The methodology is fully described elsewhere [20]. However, in brief, the assessment design concept and the data collection tools were developed based on multi-stakeholder consultations, best practice, and the assessment objectives. An Android–based structured household tool was the primary data collection tool used. The tool assessed demographics, food security indicators, prevalence and practise of urban agriculture and diet quality (household dietary diversity). ZimLAC supervisors and enumerators were recruited from Government, United Nations, Technical partners, and Non-Governmental Organisations. The supervisors and enumerators underwent a 2-day training on all aspects of the assessment. Primary data collection took place from 25 January to 10 February 2023.

Ethics approval

Primary and anonymised data collected by the ZimLAC was used in this study. As such no ethical approval was sought, however, in collecting data, ZimLAC follows the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Sampling and sample size

Sampling design and sample size for this survey is fully described elsewhere (ZimVAC, 2020). Using the ZIMSTAT 2022 master sampling frame, 13 421 households from pro poor areas (i.e., medium-density, high density, and peri-urban) were drawn using the Probability Proportional to Population Size (PPS) method (41 reporting domains). The primary outcome used to determine sample size was food insecurity prevalence and sample size was such that this could be reported at domain level with at least 95% confidence. The households were selected using systematic random sampling within the sampled domains which had been divided into enumeration areas (EAs).

Data analysis

Data was transcribed using CSEntry and CSPro, then consolidated, converted and analysed using SPSS, STATA, ENA, Microsoft Excel and GIS packages for household structured interviews. Descriptive statistics were used to characterise the sample. Chi-square analysis was used to determine whether there were statistically significant differences between households practicing urban agriculture and those not practicing urban agriculture with regards to province, gender, marital status, religion, education of household head. Mann Whitney U test was used to compare medians across non normal data. Logistic regression analysis was used to determine the household characteristics and outcomes associated with practicing urban agriculture. The regression formula applied was

$$\Pr(\text{practicing} = 1 \mid X) = f(X) = \beta_0 + \beta_{k-1}.$$

Where the variable *Practicing* takes the value of 1 if the household practices urban agriculture and 0 otherwise, f(X) is logistic distribution function and X is a vector of control variables. β_0 is a constant and β_{1-k} is a (1 x k) scalar of control coefficients.

Results

A total of 13,384 households were sampled and of these, 99.5% (13,321) accepted to be interviewed and 0.3% (37) refused. As such, data was successfully collected from the 13,384 households interviewed. Harare had the highest proportion of households interviewed (24.8%). A high proportion (88.1%) were male headed households. Most were married and living together (81.9%), had at least an ordinary level education (62.3%), were informally employed (41%) and were of the Pentecostal religion (30.5%).

Households practicing urban agriculture had a significantly older household head (45 years) compared to non-practicing (39 years). This difference was statistically significant (p < 0.05).

Regarding practicing urban agriculture, 22.2% of the urban households reported they were engaging in urban agriculture. There was a significant difference in proportions of households practicing urban agriculture versus non practicing across provinces $(X^2 = 870.897;$ df = 9; p = 0.000), marital status $(X^2 = 40.9;$ df = 5; p = 0.000), employment status $(X^2 = 23.850;$ df = 3; p = 0.000), educational level $(X^2 = 54.215;$ df = 7; p = 0.000), and religion of household head $(X^2 = 54.636;$ df = 10; p = 0.000). However, there was no difference in proportions of households practicing and not practicing urban agriculture by gender of household head $(X^2 = 0.660;$ df = 1; p = 0.417) Table 1.

	Total (n) (%)	Practicing (n) (%)	Non-Practicing (n) (%)	P Value*
Province				
Bulawayo	2052 (15.4)	517 (17.5)	1535 (14.8)	0.000
Manicaland	750 (5.6)	268 (9.1)	482 (4.7)	
Mash Central	726 (5.5)	236 (8.0)	490 (4.7)	
Mash East	1000 (7.5)	466 (15.8)	534 (5.2)	
Mash West	1242 (9.3)	251 (8.5)	991 (9.6)	
Mat North	750 (5.6)	95 (3.2)	655 (6.3)	
Mat South	749 (5.6)	17 (0.6)	732 (7.1)	
Midlands	1498 (11.2)	413 (14.0)	1085 (10.5)	
Masvingo	1249 (9.4)	250 (8.5)	999 (9.6)	
Harare	3305 (24.8)	443 (15.0)	2862 (27.6)	
National	13321	2956 (22.2)	10365 (77.8)	
Gender of Household Head				
Male	6449 (88.1)	1430 (87.5)	5019 (88.3)	0.417
Female	878 (11.9)	204 (12.5)	668 (11.7)	
Marital status of household head				
Married living together	5997 (81.9)	1321 (80.8)	4676 (82.2)	0.000
Married living apart	454 (6.2)	100 (6.1)	354 (6.2)	
Divorced/separated	236 (3.2)	49 (3.0)	187 (3.3)	
Widow/widower	419 (5.7)	138 (8.4)	281 (4.9)	
Cohabiting	53 (0.7)	7 (0.4)	46 (0.8)	
Never married	163 (2.2)	19 (1.2)	143 (2.5)	
Employment status of household head				
Not employed	1997 (27.3)	523 (32.0)	1471 (25.9)	0.000
Formally employed	2290 (31.3)	481 (29.5)	1809 (31.8)	
Informally employed	2999 (41.0)	622 (38.1)	2377 (41.8)	
Both (Formally and informally employed)	27 (0.4)	6 (0.4)	21 (0.4)	
Educational level attained of household head				
None	105 (1.4)	38 (2.3)	67 (1.2)	0.000
Primary level	596 (8.1)	191 (11.7)	405 (7.1)	
ZJC level	620 (8.5)	153 (9.4)	467 (8.2)	
O' level	4554 (62.3)	948 (58.1)	3606 (63.5)	
A' level	485 (6.6)	96 (5.9)	389 (6.8)	

Diploma/Certificate after primary	132 (1.8)	28 (1.7)	104 (1.8)	
Diploma/Certificate after secondary	465 (6.4)	102 (6.3)	363 (6.4)	
Graduate/Post-Graduate	356 (4.9)	76 (4.7)	280 (4.9)	
Religion of household				
Roman Catholic	1222 (9.2)	289 (9.8)	933 (9.0)	0.000
Protestant	1911 (14.3)	492 (16.6)	1419 (13.7)	
Pentecostal	4062 (30.5)	862 (29.2)	3200 (30.9)	
Apostolic Sect	3342 (25.1)	756 (25.6)	2586 (24.9)	
Zion	683 (5.1)	134 (4.5)	549 (5.3)	
Other Christian	786 (5.9)	183 (6.2)	603 (5.8)	
Islam	102 (0.8)	36 (1.2)	66 (0.6)	
Traditional	107 (0.8)	14 (0.5)	93 (0.9)	
Other religion	184 (1.4)	34 (1.2)	150 (1.4)	
No religion	897 (6.7)	149 (5.0)	748 (7.2)	
Don't know	25 (0.2)	7 (0.2)	18 (0.2)	
Median Age of Household head				
	40 [33, 50]	45 [38, 55]	39 [32, 48]	0.000

Table 1: Characteristics of households surveyed.

*Pearson Chi square except for continuous non-normal variables where Mann Whitney U T test was used.

At national level, the most practiced form of urban agriculture was crop/horticulture production (20.2%), followed by mixed agriculture (crop/horticulture and livestock production) (1.3%) and then livestock production (0.5%) (Table 2).

Province	Crops/horticulture production (%)	Livestock production (%)	Crops/horticulture and livestock production (%)
Bulawayo	23.0	0.47	1.04
Manicaland	33.1	0.27	2.40
Mashonaland Central	30.9	0.28	1.24
Mashonaland East	43.9	0.10	2.50
Mashonaland West	18.97	0.40	0.80
Matabeleland North	10.52	0.67	1.46
Matabeleland South	1.73	0.27	0.27
Midlands	25.98	0.47	1.07
Masvingo	15.27	1.20	3.52
Harare	12.17	0.45	0.66
National	20.2	0.5	1.3

Table 2: Households practicing urban agriculture.

Common crops grown in urban areas

The most grown crop by the households was maize (47.3%) followed by leafy vegetables (28.8%). Yams (0.3%) were the least commonly grown crop (Table 3). Maize production was most popular in Mashonaland Central province (80.6%) and production of leafy vegetables was most common in Matabeleland North province (65.6%). The results also show the diversity of crops grown by urban households, i.e., cereal grain, tubers, leafy vegetables, and bulbs were the common food groups cultivated. This is a positive result as the diversity of the crops grown contributes to improved diet quality for urban households. It is interesting to note that in some urban areas such as Matabeleland South, wheat (5.3%) normally reserved for commercial production is the second most grown crop albeit at low prevalence.

Province	Green leafy vegetables	Sweet potatoes	Cucumbers	Onions	Tomatoes	Butternut	Potatoes	Yams	Legumes (beans, peas)	Maize	Wheat	Other
Bulawayo	37.1	4.4	0.2	5.3	4.4	0.6	0.2	0.0	4.3	40.2	0.3	3.0
Manicaland	32.1	2.2	0.2	1.6	1.6	0.0	0.6	1.6	7.7	49.1	0.4	2.8
Mashonaland Central	5.3	2.1	0.4	0.4	0.4	0.0	0.4	0.0	7.4	80.6	0.4	2.8
Mashonaland East	29.4	6.5	0.8	4.3	4.6	0.4	1.1	0.3	10.2	40.5	1.0	1.1
Mashonaland West	24.3	3.9	0.5	6.1	6.6	0.0	0.0	0.0	2.2	52.7	0.2	3.6
Matabeleland North	65.6	0.8	0.0	6.3	4.7	0.0	0.0	0.8	1.6	18.0	0.0	2.3
Matabeleland South	26.3	0.0	0.0	0.0	5.3	0.0	0.0	0.0	5.3	57.9	5.3	0.0
Midlands	26.6	2.5	0.3	2.1	2.8	0.7	0.3	0.0	4.5	57.0	1.2	1.9
Masvingo	30.2	1.7	0.6	9.3	10.8	0.2	1.7	0.0	5.1	37.3	0.2	3.0
Harare	22.4	4.1	0.1	3.3	3.9	0.7	0.7	0.4	10.8	50.7	0.1	2.9
National	28.8	3.8	0.4	4.2	4.4	0.4	0.6	0.3	6.8	47.3	0.5	2.5

Table 3: Type of crops grown by urban households.

Determinants of practicing urban agriculture

Households that are more likely to practice urban agriculture had the following characteristics: high income earning households, household head chronically ill, larger household size, household located in the following provinces; Bulawayo, Manicaland, Mashonaland Central, Mashonaland West, Midlands, and Masvingo provinces (Table 4). Increasing the age of household head by one year increased the likelihood of the households practicing urban agriculture by 0.5% at the 1% level of significance, all things being constant. Similarly, a 1% increase in household income was associated with a 0.5% probability of the household practicing urban agriculture at the 1% level of significance. More so, at the 1% level of significance, households with a chronically ill head had a 3.3% probability of practicing urban agriculture while large sized households had a 1.5% likelihood of engaging in urban agriculture as compared to smaller size households, *ceteris paribus*. Except for households in Matabeleland South, households in all other provinces had an increased likelihood of practicing urban agriculture. For example, at the 1% level of significance and *ceteris paribus*, households in Mashonaland East, Manicaland and Midlands provinces had a 34.2%, 21% and 13.6% likelihood of practicing urban agriculture, respectively.

Variables	OLS Urban agriculture	Probit Urban agriculture	Logit Urban agriculture
Household head is female	-0.007	-0.038	-0.059
	(0.010)	(0.042)	(0.073)
Household head age [Years]	0.005***	0.017***	0.029***
	(0.000)	(0.001)	(0.002)
Married living apart	-0.021	-0.069	-0.116
	(0.014)	(0.052)	(0.089)
Divorced/Separated	-0.024*	-0.088	-0.150
	(0.013)	(0.055)	(0.097)
Widow/widower	0.013	0.041	0.067
	(0.015)	(0.054)	(0.092)
Cohabiting	-0.008	-0.052	-0.122
	(0.032)	(0.164)	(0.300)
Never married	-0.031**	-0.173**	-0.340***
	(0.014)	(0.069)	(0.129)
Household does not have any disability	0.032**	0.111**	0.194**
	(0.014)	(0.047)	(0.080)
Household head is chronically ill	0.033***	0.115***	0.197***
	(0.011)	(0.035)	(0.059)
Household size	0.015***	0.057***	0.095***
	(0.002)	(0.007)	(0.012)
Number of orphaned members	0.006	0.018	0.028
	(0.018)	(0.057)	(0.097)

Protestant	0.009	0.033	0.050
	(0.015)	(0.053)	(0.091)
Pentecostal	-0.002	-0.004	-0.012
	(0.013)	(0.048)	(0.083)
Apostolic sect	0.015	0.057	0.094
	(0.014)	(0.049)	(0.085)
Zion	0.007	0.029	0.048
	(0.019)	(0.072)	(0.126)
Other Christian	0.001	0.031	0.057
	(0.018)	(0.069)	(0.115)
Islam	0.063	0.172	0.307
	(0.045)	(0.137)	(0.228)
Traditional	-0.075**	-0.270	-0.553*
	(0.036)	(0.178)	(0.325)
Other religion	-0.023	-0.067	-0.165
	(0.031)	(0.126)	(0.225)
No religion	-0.017	-0.081	-0.140
	(0.017)	(0.067)	(0.118)
Bulawayo	0.092***	0.366***	0.645***
	(0.012)	(0.043)	(0.076)
Manicaland	0.210***	0.727***	1.251***
	(0.018)	(0.056)	(0.096)
Mash Central	0.180***	0.638***	1.112***
	(0.018)	(0.057)	(0.097)
Mash East	0.342***	1.106***	1.880***
	(0.016)	(0.049)	(0.084)
Mash West	0.057***	0.244***	0.437***
	(0.013)	(0.051)	(0.090)
Mat North	0.012	0.042	0.062
	(0.014)	(0.067)	(0.125)
Mat South	-0.103***	-0.917***	-1.885***
	(0.009)	(0.109)	(0.252)
Midlands	0.136***	0.517***	0.899***
	(0.013)	(0.046)	(0.081)
Masvingo	0.071***	0.299***	0.532***
	(0.013)	(0.051)	(0.090)
Income	0.005**	0.024**	0.039**
	(0.002)	(0.009)	(0.017)
Constant	-0.237***	-2.542***	-4.306***
	(0.038)	(0.149)	(0.262)
Observations	13,222	13,222	13,222
R-squared	0.108		

Table 4: Determinants of practicing urban agriculture.

Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Practicing urban agriculture was associated with a decrease in consumption or livelihoods coping, all things being equal (Table 5). More so, practicing urban agriculture was associated with an increase in the household dietary diversity score and an increase in consumption of vitamin A rich foods at the 1% level of significance all things being equal.

Barriers to urban agriculture

At the national level, the main barrier highlighted was lack of access to land (71.7%) followed by lack of interest (7.5%). The least barrier was late onset of the rains (0.6%) (Table 6). At provincial level, the challenge of lack of land for urban agriculture was dominant in Manicaland province (85.6%). On the positive side, city or council by-laws are not a barrier to urban agriculture as only 2.6% of the sampled household indicated city or council by-law being an impediment.

Discussion

The study was aimed at investigating the impact of urban agriculture on food and nutrition security in urban households in Zimbabwe. The results revealed that maize was the the most grown crop by urban households. This result is expected as maize is the staple crop in Zimbabwe and every household grows maize at any given opportunity [21]. In addition, the results revealed that urban households practicing urban agriculture grew a wide diversity of crops, i.e., cereal grain, tubers, leafy vegetables, and bulbs. This is a positive result as the diversity of the crops grown contributes to improved diets for urban households.

The wide diversity of crops contributed to better diet quality outcomes as our results show that practicing urban agriculture was associated with an increase in the household dietary diversity score and an increase in consumption of vitamin A rich foods. Regarding contribution of urban agriculture to food and nutrition security, our study revealed that urban agriculture was associated with a decrease in consumption and livelihoods coping strategies as compared to non-practicing households, meaning that practicing households were more food secure. These results corroborate findings from studies by Khumalo and Sibanda [22] and Wagner and Tasciotti [23] who reported that urban agriculture activities enable households to meet their household consumption requirements. More so, our findings are in line with the trends reported by Warren., *et al*. [24] in their literature review study on the association between urban agriculture and food security, dietary diversity, and nutritional status.

Our study revealed age of household head, income status, health status of household head, larger household size, and geographical location (province) as the determinants of practicing urban households. These results corroborate findings from previous studies on

Variables	CI	RCSI	CB	FCS	HDDS	CPRF	CVRF	CIRF
Impact of urban agriculture	0.000454	-0.0900***	-0.0458**	0.932	0.254***	-0.000249	-0.00235*	0.0237
	(0.0116)	(0.0134)	(0.0205)	(0.585)	(0.0508)	(0.00220)	(0.00135)	(0.0192)
Observations	13 222	13 222	13 222	13 222	13 192	12 025	12 764	10 905

Table 5: Impact of urban agriculture of food and nutrition security indicators.

CI: Cereal Insecurity; RCSI: Reduced Coping Strategies Index; CB: Coping Behaviour; FCS: Food Consumption Score; HDDS: Household Dietary Diversity Score; CPRF: Consumption of Protein Rich Foods; CVRF: Consumption of Vitamin Rich Foods; CIRF: Consumption of Iron Rich Foods

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Province	Reasons not practicing Agriculture							
	No access to land	Viability	Lack of time	Not interested	Late onset of the rains	Council by-laws	Lack of inputs	Other
Bulawayo	66.6	4.3	8.9	9.8	0.7	1.8	1.1	6.7
Manicaland	85.6	0.2	1.3	2.3	0.0	3.4	5.1	2.1
Mashonaland Central	74.6	1.5	4.6	6.5	0.0	1.0	7.8	4.0
Mashonaland East	75.2	3.2	7.5	6.8	0.3	0.7	2.6	3.7
Mashonaland West	68.4	2.7	3.9	8.9	0.1	2.0	5.5	8.4
Matabeleland North	69.7	7.0	9.9	5.8	0.0	3.5	1.2	3.0
Matabeleland South	69.7	1.8	3.8	10.3	3.9	6.8	0.5	3.3
Midlands	74.6	3.2	4.3	4.9	0.0	0.3	2.8	9.9
Masvingo	67.7	4.0	12.2	7.1	1.9	0.7	2.9	3.5
Harare	73.1	2.4	4.4	7.8	0.2	3.8	5.3	3.1
National	71.7	3.1	6.1	7.5	0.6	2.6	3.6	4.9

Table 6: Barriers to urban agriculture disaggregated by province.

determinants of urban agriculture [13,22,23,25]. However, unlike findings from Nyamasoka., *et al*. [26] that urban agriculture was mainly practiced by low-income households, our study revealed all things being equal, higher income was associated with higher probability of practising urban agriculture. This finding could be attributed to land availability. According to Gerster-Bentaya [27], Taiwo [28], and Audate., *et al*. [25], urban agriculture is influenced by the availability and access to land. As such, high income earning households are likely to have larger pieces of land to practice urban agriculture in their backyards. According to Davies., *et al*. [29], households living in situations of tenure insecurity are also less able or less inclined to invest in UA. Hence, many of the people who could benefit from urban agriculture live in dense, overcrowded settlements, where they do not have the land on which to grow food [29].

Results presented in this paper indicated access to land as one of the determinants of urban agriculture. In contrast to our findings where the promotion of urban agriculture in the municipalities has resulted in the implementation of polices and frameworks that recognise urban agriculture as a legitimate urban land use, Mireri [30] and Warren., *et al*. [24] found that urban agriculture is illegal in most African countries. According to Chagomoka., *et al*. [31], prevailing regulations which illegalises urban agriculture contributes to the reduced participation of urban household in urban agriculture. The lack of policies legitimising urban agriculture is hampering urban agriculture in some African counties. With evidence pointing to a positive impact on household food and nutrition security status, it is important that urban planners consider urban agriculture as a legitimate use of urban land.

This study was based in the poor areas of urban Zimbabwe (areas of low socio-economic status). Though the sample size was large, results cannot be generalised to all urban areas in the country. An investigation into the impact of urban agriculture in areas of higher socio-economic status is warranted to provide a complete understanding of the impacts of urban agriculture. Most households in areas of high socioeconomic status are characterised by green expanse of land and year-round availability of water for domestic purposes. There is evidence that high income dwellers purchase more of their food than rely on farming and therefore may not consider urban agriculture as a coping strategy towards food insecurity. However, some scholars argue that urban agriculture cuts across all income groups [24,32]. It is therefore possible that an investigation into the contribution of urban agriculture in these areas may yield similar results. With the advent of cluster houses in most urban areas and much more efficient use of built-up areas, food and nutrition security indicators may deteriorate in the future. The resultant nutrition transition is already evident as higher overweight and obesity prevalence and non-communicable diseases are being realized in urban areas.

Conclusion and Policy implication

This paper seeks to provide a solid evidence base for policy makers and practitioners on the impact of urban agriculture on food and nutrition security, using a case study of Zimbabwe. We set out to answer three questions: (i) what percentage of urban households practice urban agriculture in Zimbabwe? (ii) which type of urban agriculture (crops or livestock) is being practiced? and (iii) what is the impact of urban agriculture on food and nutrition security in urban households in Zimbabwe? The study revealed that 22.2% of the urban households in Zimbabwe practice urban agriculture and maize was the main crop grown, whilst rearing of small livestock is limited. The results showed that urban agriculture contributes to better food and nutrition outcomes, which include decrease in consumption and livelihoods coping strategies, increased household dietary diversity, and increased in consumption of vitamin A rich foods. However, lack of access to land was the main barrier impeding urban agriculture. As such, there is need for governments to deliberately set aside land in the periphery on urban areas to promote urban agriculture. More so, policies to guide and support urban agriculture must be implemented in the context of a food systems approach alongside measures to avoid land degradation whilst upholding public health.

Statements and Declarations

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Competing Interests

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Availability of Data and Materials

The datasets analysed in the current study are available from the Zimbabwe Vulnerability Livelohoods Committee (ZimLAC), but restrictions apply to the availability of these data, which were used under a Memorandum of Understanding for the current study, and so are not publicly available.

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