

Original Research Article

Central adiposity, lifestyle behaviours and utility of the Ashwell String test among urban working women: a pilot study

Anuja A. Bhise, Anuja A. Kinikar*, Harshada K. Thakur, Aakanksha A. Salve

Department of Food Science and Nutrition, SNDT College of Home Science, Pune, SNDT Women's University, Maharashtra, India

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*Correspondence:

Anuja A. Kinikar,

E-mail: anujakinikar@homescpune.sndt.ac.in

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ABSTRACT

Background: Central adiposity and sedentary lifestyle behaviours contribute to cardiometabolic risk among working women. Simple tools such as the Ashwell String Test can aid in early identification of central adiposity. This study assessed central adiposity, lifestyle risk factors, KAP, and the utility of the Ashwell String Test among urban working women.

Methods: A cross-sectional pilot study included 50 urban working women in Pune, India. Data were collected using a structured questionnaire, a Knowledge, Attitude, and Practice (KAP) assessment, the International Physical Activity Questionnaire (IPAQ), 24-hour dietary recall, bioelectrical impedance analysis, and the Ashwell String Test. Central adiposity was assessed using waist circumference, waist-to-hip ratio, and waist-to-height ratio (WHtR).

Results: Mean age of participants was 31.38 ± 5.19 years, BMI was 26.52 ± 4.77 kg/m², and WHtR was 0.54 ± 0.08 . Obesity was observed in 62% of participants, while 66% had a WHtR >0.5. The Ashwell String Test identified 64% as being at risk of central adiposity and was significantly associated with WHtR. Mean screen time was 6.80 hours/day and sitting duration 6.1 hours/day; only 10% achieved health-enhancing physical activity (HEPA) levels. Elevated blood pressure or hypertension was observed in 32% of participants. A knowledge-practice gap was identified despite good knowledge and positive attitudes.

Conclusions: Urban working women exhibited a high prevalence of central obesity, sedentary lifestyle behaviours, and early cardiometabolic risk factors. Ashwell String Test demonstrated potential as a simple, practical screening tool for central adiposity. Large longitudinal studies are warranted to validate these findings and inform workplace lifestyle interventions.

Keywords: Central adiposity, Knowledge attitude practices, Obesity, Waist-to-height ratio

INTRODUCTION

Rapid urbanisation and lifestyle transitions in developing countries, including India, have led to a substantial increase in the burden of non-communicable diseases (NCDs), particularly cardiovascular diseases, obesity, diabetes, and hypertension.¹ Sedentary lifestyle, unhealthy dietary habits, physical inactivity, and prolonged screen exposure are among the major modifiable risk factors associated with these conditions.

In India, NCDs account for a major proportion of premature mortality, with obesity and hypertension emerging as significant public health concerns among young and middle-aged adults.^{2,3}

Among the various indicators of obesity, central adiposity is considered a stronger predictor of cardiometabolic risk than general obesity, especially in South Asian populations.⁴ Central adiposity has shown a strong association with hypertension, type 2 diabetes mellitus, cardiovascular diseases, and metabolic disorders.⁵

Evidence from the National Family Health Survey (NFHS-5) conducted in India indicates a high prevalence of abdominal obesity among Indian women, highlighting the growing risk of cardiometabolic complications within this population.⁶ Although body mass index (BMI) is widely used to assess obesity, it does not adequately reflect the abdominal fat distribution and associated metabolic risk. Anthropometric measures such as waist circumference (WC) and waist-to-height ratio (WHtR) are better indicators of central adiposity.^{7,8}

The Ashwell String Test, introduced by Ashwell and Gibson, is a practical and low-cost screening method based on the principle that waist circumference should be less than half of an individual's height.⁹ The test provides a simple visual assessment of WHtR and may be particularly useful in community and low-resource settings. A recent Indian pilot study validated the applicability of the String Test among young adults, suggesting its feasibility as a self-screening and awareness tool for central adiposity.¹⁰

Lifestyle factors such as prolonged screen time, physical inactivity, sedentary behaviour and unhealthy dietary patterns have been associated with increased obesity and hypertension risk. Higher screen time has been positively associated with central obesity indicators independent of physical activity levels.¹¹ On the contrary, regular physical activity has been shown to reduce the adiposity-related health risks.¹² In the urban Indian context, working women may be particularly vulnerable to these lifestyle-related health risks due to occupational sedentary behaviour, prolonged use of digital devices, irregular schedules, stress, and dual burden of professional and household responsibilities.

Despite increasing evidence on individual lifestyle factors, limited studies in India have evaluated the combined association of obesity, screen time, physical activity, hypertension, dietary intake, lifestyle behaviour and knowledge, attitude and practice (KAP) among urban working women. Furthermore, studies exploring the applicability of self-screening approaches, such as the Ashwell String Test, remain limited. The present pilot study aimed to assess central adiposity and blood pressure among the urban working women aged 25-40 years in Pune City and to evaluate their association with lifestyle factors, including screen time, physical activity and dietary intake. The study also aimed to assess healthy lifestyle-related behaviours through knowledge, attitude and practice assessment and determine the utility of Ashwell String Test as a simple screening tool for central adiposity identification.

METHODS

Study design and study setting

A cross-sectional pilot study was conducted in Pune City, Maharashtra, India, between March and April 2026

among working women aged 25-40 years. The study assessed the association between lifestyle factors, central adiposity, and blood pressure status among the participants using standardised questionnaires and anthropometric assessments.

Study participants

The study included working women aged 25-40 years residing and employed in Pune City. Women with known comorbidities and those on long-term medications were excluded from the study. Participants were recruited using purposive non-probability sampling from various workplaces across Pune City. A pilot sample of 50 participants was considered to assess the feasibility and generate preliminary estimates for further larger studies.

Ethical considerations

Informed consent was obtained from all the participants before the data collection. Confidentiality and anonymity of participant information were maintained throughout the study.

Data collection

Data were collected through personal interviews using structured questionnaires and standardised assessment methods.

Demographic and lifestyle assessment

Demographic and occupational characteristics were collected using a structured questionnaire, which included information on age, occupation, average working hours and working pattern (fixed day shift- on-site; rotational shift; work from home).

Anthropometric and clinical assessment

Height was measured using a standard stadiometer (SECA 213) following the WHO STEPS guidelines.¹³ Weight and body composition parameters (total body fat percentage, visceral fat, and water percentage) were assessed using a bioelectrical impedance analyser (Tanita Inner Scan V). Body Mass Index (BMI) was calculated using the Quetelet formula and classified according to the WHO Asia-Pacific criteria.¹⁴

Waist circumference and hip circumference were measured using a non-stretchable measuring tape (SECA 201) according to the WHO STEPS protocol.¹³ Waist-to-hip ratio (WHR) and waist-to-height ratio (WHtR) were subsequently calculated. WHtR was interpreted according to the NICE guidelines.¹⁵ Central adiposity was additionally assessed using the Ashwell String Test, in which a non-stretchable string equal to the participant's height was folded in half and wrapped around the waist. Failure of the string ends to meet indicated increased

central adiposity and thus subsequent cardiometabolic risk.⁸

Blood pressure and pulse rate were measured using a validated automated upper-arm digital monitor (Omron HEM 7124) following the WHO guidelines.¹⁶ Two readings were obtained after 5 minutes of rest, and the average value was recorded for analysis. The blood pressure classification was done as normal, elevated blood pressure and hypertension following the Indian Council for Medical Research (ICMR) 2026 guidelines.¹⁷

Knowledge, Attitude and Practice (KAP) questionnaire

A structured knowledge, attitude, and practice questionnaire was developed to assess awareness, perceptions, and behaviours related to screen exposure, physical activity, central adiposity and hypertension. The questionnaire was reviewed by subject experts and pilot tested before administration. KAP scores were categorised as very low, low, average, and good based on the quartile distribution of the obtained scores.

Screen time assessment

Screen time was assessed using a self-reported structured questionnaire that recorded the average duration of screen exposure across devices, including smartphones, laptops, computers, tablets, and televisions, and the purpose-work, leisure or both. Screen time was categorised into <2 hours/day, 2-4 hours/day and >4 hours/day.

Physical activity assessment

Physical activity levels were assessed using the International Physical Activity Questionnaire - Short Form (IPAQ-SF).¹⁸ Participants were categorised into inactive (<600 MET-min/week), minimally active (≥600 MET-min/week), and health-enhancing physical activity (HEPA) (≥1500 or ≥3000 MET-min/week).

Dietary assessment

Dietary assessment was conducted using a 24-hour dietary recall method following the FAO dietary assessment guidelines.¹⁹ The macronutrient intake was analysed using the ICMR-NIN guidelines.

Statistical analysis

Data were coded and entered into Microsoft Excel and analysed using IBM SPSS Statistics [version 16.0]. Descriptive statistics, including mean, standard deviation, frequency, and percentage, were used to summarise the data. Appropriate inferential statistical tests (Chi-square tests, Pearson's correlation analysis, and one-sample t-tests) were applied to determine associations between lifestyle parameters, central obesity indicators, and blood pressure variables. A p-value of <0.05 was considered statistically significant.

RESULTS

Sociodemographic characteristics

The study included 50 urban working women. The mean age of the participants was 31.38±5.19 years. More than half of the participants (56%, n=28) were aged 25-30 years, followed by 36-40 years (26%, n=13) and 31-35 years (18%, n=9). Half of the participants were employed in the education and academia sector (50%, n=25), followed by 30% (n=15) who worked in corporate, finance, or administrative roles. Most participants (56%, n=28) reported working 6-8 hours/day, whereas 26% (n=13) worked for more than 8 hours/day. The majority followed a fixed day-shift work pattern (90%, n=45) (Table 1).

Table 1: Sociodemographic data.

Respondent details	Classes	N (%)
Age in years	25-30	28 (56)
	31-35	9 (18)
	36-40	13 (26)
Occupation	Education/academia	25 (50)
	Corporate/finance/administrative	15 (30)
	Business/support services	6 (12)
	Healthcare	4 (8)
Working hours (in hours)	<6	9 (18)
	6-8	28 (56)
	>8	13 (26)
Work pattern	Fixed day shift (on-site)	45 (90)
	Rotational shift	2 (4)
	Work from home	3 (6)

Baseline anthropometric, body composition, clinical and lifestyle characteristics

Baseline anthropometric, body composition, clinical and lifestyle characteristics are presented in Table 2. The mean body mass index (BMI) was 26.52±4.77 kg/m², while the waist circumference and waist-to-height ratio were 83.98±12.30 cm and 0.54±0.08, respectively. Mean systolic and diastolic blood pressures were 109.44±13.79 mmHg and 73.99±10.90 mmHg, respectively. The mean total body fat percentage was 38.55±7.11%, visceral rating was 6.98±2.90, and the body water percentage was 43.17±3.77%.

The average screen time was 6.80±3.7 hours/day, while the daily sitting duration was 6.11±2.24 hours. The physical activity level was 1469±2505.92 MET-min/week. The mean macronutrient intake was 244.6±34.31 g (carbohydrate), 41.38±7.92 g (protein) and 63.18±12.79 g (fat), while the energy intake was 1797±280.74 kcal per day.

Table 2: Baseline anthropometric, body composition, clinical and lifestyle characteristics of study participants (n=50).

Variables	Mean±SD
Height (cm)	155.87±5.76
Weight (kg)	64.26±10.89
Body mass index (kg/m ²)	26.52±4.77
Waist circumference (cm)	83.98±12.30
Hip circumference (cm)	102.53±10.22
Waist-to-hip ratio	0.82±0.07
Waist-to-height ratio	0.54±0.08
Systolic blood pressure (mmHg)	109.44±13.79
Diastolic blood pressure (mmHg)	73.99±10.90
Pulse rate (beats/min)	80.8±8.54
Total body fat (%)	38.55±7.11
Visceral fat rating	6.98±2.90
Body water (%)	43.17±3.77
Screen time (hours/day)	6.80±3.7
Sitting time (hours/day)	6.11±2.24
IPAQ score (MET-min/week)	1469±2505.92
Carbohydrate intake (g/day)	244.6±34.31
Protein intake (g/day)	41.38±7.92
Fat intake (g/day)	63.18±12.79
Energy intake (kcal/day)	1797±280.74

Distribution of anthropometric, clinical and lifestyle characteristics

Table 3 presents the distribution of anthropometric, clinical and lifestyle characteristics. With reference to the WHO Asia-Pacific BMI classification, 62% (n=31) of the participants were classified as obese, 16% (n=8) as overweight, and 20% (n=10) as normal. According to the recommended waist-to-height ratio (WHtR) cut-off of 0.5, 66% (n=33) of the participants were at an increased cardiometabolic risk, with a waist-to-height ratio more than 0.5, while 34% (n=17) had WHtR ≤0.5. Blood pressure assessment according to the ICMR 2026 guidelines showed that 68% (n=34) of the participants had normal blood pressure, 26% (n=13) had elevated blood pressure, and 6% (n=3) were classified as hypertensive. Physical activity assessment indicated that 50% (n=25) of participants were minimally active, 40% (n=20) were inactive, while only 10% (n=5) achieved health-enhancing physical activity (HEPA) levels. The Ashwell String Test results revealed that 64% (n=32) of the participants had a gap between the string ends, 28%

(n=14) had overlapping string ends, and 8% (n=4) had string ends meeting.

Knowledge, Attitude and Practice (KAP) assessment

Selected responses to the Knowledge, Attitude and Practice (KAP) questionnaire are presented in Table 4. Overall, the participants demonstrated relatively good knowledge and positive attitudes towards the lifestyle behaviours associated with obesity and hypertension. However, gaps were observed in awareness of specific risk indicators and lifestyle practices. While most participants (92%, n=46) recognised that prolonged screen time negatively affects sleep, less than half (46%, n=23) recognised abdominal fat as a risk factor for hypertension. Although positive attitudes towards lifestyle modifications were evident, 84% (n=42) considered abdominal obesity as a serious health concern for women, and 36% (n=18) perceived regular exercise as difficult to manage with their work schedules. With respect to lifestyle practices, 56% (n=28) reported using screens within 1 hour before bedtime. All the participants (100%, n=50) expressed willingness to use the Ashwell String test for self-monitoring. Prior awareness of the Ashwell String test was limited, with only 16% (n=8) reporting familiarity before participating in the current study.

Table 3: Distribution of BMI, waist-to-height ratio, blood pressure, physical activity and Ashwell String categories.

Variables	Category	N (%)
BMI	Underweight	1 (2)
	Normal	10 (20)
	Overweight	8 (16)
	Obese	31 (62)
WHtR	Normal	17 (34)
	At risk	33 (66)
Blood pressure	Normal	34 (68)
	Elevated blood pressure	13 (26)
	Hypertension	3 (6)
Physical activity	Inactive	20 (40)
	Minimally active	25 (50)
	Hepa	5 (10)
Ashwell String test	Ends meeting	4 (8)
	Gap	32 (64)
	Ends overlapping	14 (28)

Table 4: Selected responses to the knowledge, attitude and practice questionnaire (n=50).

Domains	Statement	Number (%)
Knowledge	Recognised that prolonged screen time negatively affects sleep	46 (92)
	Recognised that excess abdominal fat increases risk of hypertension	23 (46)
Attitude	Perceived regular exercise as difficult to manage with work schedule	18 (36)
	Considered abdominal obesity a serious health concern for women	42 (84)
Practice	Reported use of screen within 1 hour before bedtime (always, often)	28 (56)
	Expressed willingness to use Ashwell String test for self-monitoring	50 (100)

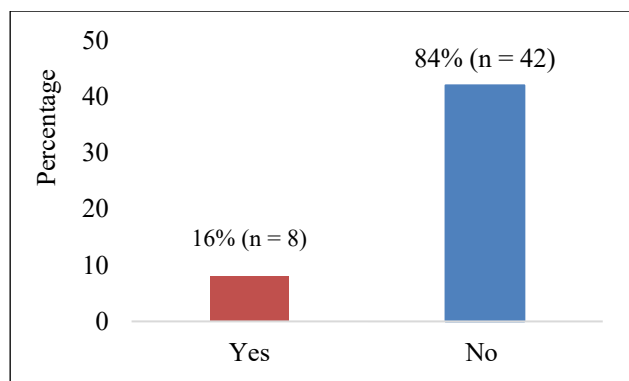


Figure 1: Participant awareness of the Ashwell String test prior to study participation.

Correlation analysis

Pearson correlation analysis identified significant associations among anthropometric, body composition and lifestyle variables (Table 5). Waist circumference demonstrated a strong positive correlation with waist-to-height ratio ($r=0.971$, $p<0.001$). Waist-to-height ratio was positively correlated with total body fat ($r=0.737$, $p<0.001$) and visceral fat ($r=0.791$, $p<0.001$), whereas it showed a strong negative correlation with body water percentage ($r=-0.640$, $p<0.001$). Among the lifestyle variables, total screen time was positively correlated with sitting hours ($r=0.452$, $p=0.001$) and negatively correlated with physical activity level, assessed using the IPAQ ($r=-0.295$, $p=0.038$).

Table 5: Pearson correlation analysis among anthropometric, body composition and lifestyle variables.

Variables 1	Variables 2	Pearson's r	P value
WC	WHtR	0.971	<0.001
WHtR	Total body fat	0.737	<0.001
WHtR	Visceral fat	0.791	<0.001
WHtR	Body water percentage	-0.640	<0.001
Total screen time	IPAQ score	-0.295	0.038
Total screen time	Sitting hours	0.452	0.001

WC=Waist circumference; WHtR=Waist-to-height ratio; IPAQ= International Physical Activity Questionnaire; Pearson's correlation coefficient (r) was used to assess the strength and direction of linear associations; Statistical significance was set at $p<0.05$

Association between WHtR and BMI categories

A statistically significant association was observed between the waist-to-height ratio (WHtR) categories and the body mass index (BMI) categories ($\chi^2=37.33$, $df=3$, $p<0.001$) using Pearson's chi-square test (Table 6). Of the 33 participants classified as being at risk based on the WHtR, 30 (90.9%) were obese, and 9.1% ($n=3$) were overweight. In contrast, all the remaining participants with normal BMI were classified under the normal WHtR category.

Table 6: Association between waist-to-height ratio categories and body mass index categories.

Variables		BMI categories, N (%)				Total
		Underweight	Normal	Overweight	Obese	
WHtR categories	Normal (≤ 0.5)	1 (2)	10 (20)	5 (10)	1 (2)	17 (34)
	At risk (> 0.5)	0	0	3 (6)	30 (60)	33 (66)
Total		1 (2)	10 (20)	8 (16)	31 (62)	50 (100)

Pearson's Chi-square test showed a significant association between WHtR category and BMI category ($\chi^2 = 37.33$, $df=3$; $p<0.001$); WHtR=Waist-to-height ratio

Table 7: Association between waist-to-height ratio categories and Ashwell String categories.

Variables		Ashwell String test categories, N (%)			Total
		Ends meeting	Gap	Ends overlapping	
WHtR categories	Normal (≤ 0.5)	4 (8)	0	13 (26)	17 (34)
	At risk (> 0.5)	0	32 (64)	1 (2)	33 (66)
Total		4 (8)	32 (64)	14 (28)	50 (100)

Pearson's chi-square test showed a significant association between WHtR categories and Ashwell String Test categories ($\chi^2=45.89$, $df=3$, $p<0.001$). WHtR=Waist-to-height ratio

Association between WHtR categories and Ashwell String categories

Pearson's chi-square test demonstrated a statistically significant association between waist-to-height ratio (WHtR) categories and Ashwell String Test categories

($\chi^2=45.89$, $df=3$, $p<0.001$) (Table 7). All the participants classified as having a gap between the string ends were categorised as being at risk based on WHtR. In contrast, 13 of the 14 (92.9%) participants with overlapping string ends and all participants whose string ends met (100%, $n=4$) were classified within the normal WHtR category.

DISCUSSION

The present pilot study evaluated central obesity, blood pressure and lifestyle-related factors among urban working women. A high prevalence of obesity and central obesity was observed, with two-thirds of the participants classified as being at risk based on WHtR. Nearly one-third of the participants exhibited elevated blood pressure despite their relatively young age. Most participants reported prolonged screen time and low levels of health-enhancing physical activity. WHtR demonstrated significant associations with both body mass index (BMI) and the Ashwell String Test, supporting its potential utility as a simple screening tool for central obesity. Although the participants demonstrated good knowledge and positive attitudes towards healthy lifestyle behaviours, several unhealthy practices were still evident. Overall, these findings suggest the emergence of cardiometabolic risk factors in young urban working women, reinforcing the need for early risk identification and preventive lifestyle interventions.

Obesity, central obesity and cardiometabolic risk

The present study demonstrated a high prevalence of both general and central obesity among the urban working women, with 62% of participants classified as obese according to the WHO Asia-Pacific classification and 66% identified as being at risk based on the WHtR. The high prevalence of central obesity in a relatively young population may be attributed to the combined effect of sedentary lifestyle and transitions associated with urbanisation. These findings are consistent with the growing burden of obesity among Indian women reported in the recent national study by the Indian Council of Medical Research-PCOS National Task Force. The study reported a higher prevalence of overweight and obesity among urban women, highlighting the influence of urbanisation and lifestyle on adiposity.²⁰ Further, Sengupta et al reported a high prevalence of abdominal obesity among Indian adults and that sedentary occupations were significantly associated with central obesity, highlighting the influence of inactivity on abdominal fat accumulation.²¹ Thus, the high prevalence observed in the present study can be attributed to prolonged sedentary work, higher screen exposure, and inadequate physical activity, which are recognised factors contributing to increased abdominal adiposity.

The measurement of central obesity is considered a more clinically relevant indicator of cardiometabolic risk than excess body weight alone because visceral fat accumulation is strongly associated with hypertension, dyslipidaemia and metabolic disorders.⁹ It has been reported that a WHtR exceeding 0.5 identifies increased cardiometabolic and mortality risk even with a normal BMI, highlighting the limitations of relying only on BMI for risk assessment.²² Likewise, Guzmán-García et al, reported that WHtR demonstrated the highest discriminative ability for identifying metabolically

healthy obesity among working adults, supporting its usefulness as a simple anthropometric indicator to identify cardiometabolic risk at a preliminary level.²³ Therefore, the high prevalence of WHtR above the cut-off value underscores the importance of incorporating WHtR along with the BMI in routine screening, particularly among the urban working women.

Lifestyle behaviours among the urban working women

The present study identified a high mean screen time (6.80 hours/day), prolonged sitting duration (6.1 hours/day) and low levels of physical activity among the urban working women, with only 10% of the participants achieving health-enhancing physical activity (HEPA) levels. Furthermore, screen time was positively associated with sitting time and inversely related to physical activity, reflecting an overall sedentary lifestyle behaviour among the young working population. Although the World Health Organization (WHO) does not recommend a specific upper limit for screen time, the 2020 guidelines emphasise replacing prolonged sedentary behaviour with physical activity to lower the risk of non-communicable diseases.²⁴

These findings are consistent with the meta-analysis by Rehman et al, which demonstrated that greater mobile and television screen exposure was significantly associated with overweight/obese women across 36 low- and middle-income countries.²⁵ In addition, Jain et al reported that prolonged occupational screen exposure among Indian IT professionals contributed to sedentary behaviour and further health concerns. Collectively, these findings suggest workplace interventions that facilitate regular physical movement breaks and support cardiometabolic health.²⁶

Blood pressure profile

Although the study participants were relatively young with a mean age of 31 years, over one quarter demonstrated elevated blood pressure, suggesting that cardiovascular risk factors may begin to emerge during early adulthood. Notably, the elevated blood pressure coexisted with high levels of obesity and central adiposity, emphasising the close relationship between excess abdominal fat and cardiovascular risk. This finding is consistent with Ragavan et al, who reported that a significant association lies between central obesity and hypertension among the Indian adult population. The study also emphasised the importance of assessing central adiposity alongside body mass index.²⁷ These findings are further supported by Ren et al, stating central adiposity independently increased the risk of hypertension, even among individuals with a normal body weight.²⁸ Notably, all three participants classified as hypertensive in the present study were obese, had a WHtR above the recommended cut-off, had a gap between the string ends for the Ashwell String Test and were physically inactive. Although based on a small number of participants, this

observation supports the cumulative cardiometabolic risk factors and warrants investigation in further larger studies.

Utility of WHtR and Ashwell String test for identifying central obesity

The present study observed a high prevalence of central obesity, and a significant association between the waist-to-height ratio (WHtR) and Ashwell String Test supports the utility of the screening tool for identifying abdominal adiposity. These findings are consistent with Ashwell and Gibson who proposed WHtR as a simple and reliable indicator of cardiometabolic risk and advocated keeping the waist circumference less than half of one's height.²⁹ Similarly, a recent pilot study by Kinikar et al reported a significant agreement between the Ashwell String Test and WHtR among Indian young adults, supporting its applicability as a simple, practical, cost-effective tool for community screening of central obesity.¹⁰ This suggests that the Ashwell String Test may serve as a rapid, inexpensive and practical community-based screening tool where conventional anthropometric tools cannot be set up or are not readily available.

Knowledge, attitude and practice towards healthy lifestyle behaviours

Participants demonstrated good knowledge and positive attitudes towards healthy lifestyle behaviours; however, these were not consistently translated into practice, indicating a knowledge-practice gap. This discrepancy suggests that awareness alone may be insufficient to achieve sustained behavioural change, especially given occupational demands, sedentary work environments, and limited opportunities for physical activity. These findings underscore the importance of promoting practices along with awareness. Thus, comprehensive interventions and support by workplace policies are needed to promote sustained healthy practices with long-term adoption.

One of the major strengths of the present study is its comprehensive assessment of anthropometric, body composition, blood pressure, and lifestyle-related factors, using validated tools, including waist-to-height ratio (WHtR), the Ashwell String Test, the International Physical Activity Questionnaire (IPAQ), and the Knowledge, Attitude and Practice (KAP) questionnaire. In addition, it also provides preliminary evidence on the applicability of the Ashwell String Test among urban working women.

Public health implications and future research

The high prevalence of central obesity, prolonged sedentary behaviour and early cardiovascular risk factors observed among the urban working women highlights the need for routine workplace screening and lifestyle-based interventions. Incorporating simple anthropometric measurements such as WHtR and Ashwell String Test

into workplace wellness programmes may help prevent cardiometabolic risk at an early stage. Interventions aimed at reducing prolonged sitting behaviour, screen time and encouraging physical activity may contribute to improved cardiometabolic health in this population. Further studies involving larger, more diverse populations and longitudinal studies are warranted to validate these findings and evaluate the effectiveness of targeted interventions in improving lifestyle behaviours, thus reducing cardiometabolic diseases.

CONCLUSION

The present pilot study identified a high prevalence of overweight/obesity and central obesity among the working women aged 25-40 years, along with prolonged sedentary behaviour, high screen time, low levels of health-enhancing physical activity (HEPA) and early cardiovascular risk factors including elevated blood pressure. Significant associations were observed between waist-to-height ratio, body mass index and Ashwell string test, supporting their potential utility as simple measures for identifying central adiposity and cardiometabolic risk at the primary level. Although the participants demonstrated good knowledge and positive attitude towards healthy lifestyle behaviours, these were not consistently translated into practice, highlighting the need for behaviour-focused interventions.

The findings suggest incorporating simple, low-cost tools such as WHtR and Ashwell String Test into workplace and community health programs for early identification of cardiometabolic risk factors. Further larger longitudinal studies including diverse populations are warranted to validate these findings and evaluate the effectiveness of targeted lifestyle interventions in reducing the burden of obesity and related non-communicable diseases.

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