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## ORIGINAL

# WEARABLE FITNESS TECHNOLOGY: A QUANTITATIVE ANALYSIS OF ITS EFFECTIVENESS FOR WEIGHT MANAGEMENT

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### ABSTRACT

While there are many tools available to help people lose weight and lower the rising rate of obesity, wearable technology has not been demonstrated to be helpful in long-term weight control. The objective of this study was to perform a comprehensive review of the literature regarding the long-term usage of wearable technologies to assist overweight or obese people in losing weight. We also searched the databases of EMBASE, Compendex, ScienceDirect, Cochrane Central, Medical Literature Analysis and Retrieval System Online, and Scopus. Studies that collected data over a minimum of one year (long-term) and included adult participants with a BMI >24 met the inclusion criteria. The instruments utilized to undertake the risk of bias assessment, which was suitable for a variety of study types, included the Cochrane risk of bias tool, Risk of Bias In Nonrandomized studies of Interventions, A Measurement Tool to Assess Systematic Reviews, and six questions to elicit critical thinking. Included is a narrative summary of the study's conclusions. Out of the five intervention studies that we included, four were randomized controlled trials and one was nonrandomized research. Six systematic reviews, four discussion articles, and concepts from a dissertation were also included. Despite the fact that the wearable device treatments did not outperform comparator interventions, participants who were overweight or obese gradually lost weight. Overall research founded that significant impact of wearable fitness technology on weight management. There was a strong likelihood that the included intervention trials were impacted by bias. There were significant discrepancies in the included study aims, methodology, and results, making a meta-analysis difficult.

**KEYWORDS:** Wearable Fitness Technology (WFT), Effectiveness Analysis

(EA), Weight Management (WM), Quantitative Analysis (QA)

## 1. INTRODUCTION

In the present era, we cannot survive without Technology. We have become so dependent upon Technology for our daily routine that we cannot deny its importance. Nowadays, there are new advancements in science, such as the introduction of wearable technology. Wearable Technology refers to electronic devices that can easily be worn on body parts with special software. This software will be helpful for sensation, tracking, monitoring and a few other important aspects of daily life. There are a variety of applications of these wearable technologies in our daily lives. Few wearable Technologies, such as Fitbit, Garmin and others, can be used as fitness trackers(Stinson, 2021). Especially Fitbit is a brand that develops different wearable devices. These important devices are Fitbit Inspire, Fitbit Charge, Fitbit Versa, Fitbit Ionic and Fitbit Ace. There are a variety of applications for these tracking wearables, such as it helps track steps and monitoring distance. It can also be used to monitor heartbeat, which is an important aspect of physical and mental health. The other application of these trackers is that they can be used to track duration, stage, and quality of sleep. GPS tracking is Aldi, and it is one of the important applications of these wearables(Ghent, 2023). As we know, exercise is mandatory for maintaining Physical and mental health, so every person, not only athletes, must have time for proper exercise. Wearable technology is also helpful because it has wearable devices that can track exercise. The other important aspect of wearable Technology applications is that it has wearable devices that can help track calories burned in the body. These days, we know that we have lifestyles with less Running or any other such activity. So, there is a need to burn extra calories from the body for the health of the body and to prevent many diseases related to obesity in the human body(Le, 2017). For this purpose, wearable Technology has introduced trackers that can easily track calorie burnout in the body. A normal breathing pattern is necessary to calm the body in stressful conditions. If guidance is provided to human beings for controlling their breathing rate, they can easily control their emotions at a given time. For this purpose, there are such trackers that not only track breathing patterns but can also be useful for providing guidance related to control of breathing rate in specific conditions. Smartwatch is also one of the important wearable technologies that has gained much importance these days. The reason for its importance is the variety of functions of the smartwatch. Although it is just like a normal watch, it can be used as a tracker, sensor and mobile phone(Yin, 2023). All the functions described by these trackers are present in the wearable smartwatches. There is also the implantation of sensors in these Smartwatches, which can't be helpful in measuring different physical parameters of the body such as body temperature, pulse rate, heart rate, and sleep quality tracker. Tracking of distance covered and many other such aspects. These smartwatches can also be used as mobile phones in this

Modern era of science and Technology. The other example of wearable Technology is smart glasses, which have a variety of applications. For instance, these can be used to monitor UV and cosmic radiations in the environment, preventing the dispersion of light and reducing the Intensity of sunlight. Some wearables are considered an important application of wearable Technology(Kaasgaard, 2022; Qian, 2023). These wearables can be used to avoid noise, thus helping increase to increase the focus and attention of any person. There is an emerging application of wearable Technology and smart clothing these days. There are a variety of applications for these Smart clothing because of its various sensors, which can be useful for athletes. With advancements in science and Technology, these wearable technologies have also made their space in the medical field. Different medical wearables are used to monitor different medical parameters such as blood pressure, blood glucose level, and other factors. These days, where artificial intelligence has more importance than human intelligence, and we are more reliant on machinery for our daily tasks, the aspect of being overweight has been increasing Daily(Mei, 2024). The most important challenge these days is proper weight management for human beings. Wearable Technology would also be helpful in weight management in different ways. Various factors need to be considered for weight management. These important factors are physical activity, sleep patterns, heart rate, calorie intake, body composition, hydration level, and stress level. So, if a person wants to manage his weight properly, he needs to follow all the standards related to these factors. The first factor is physical activity, and wearable Technology helps monitor physical activity such as running, jumping, hopping, etc. For example, fitness trackers can monitor exercises such as distance covered daily(Dornik, 2020). This aspect will help maintain a habit of proper exercise daily and will be useful for weight management. The other factor is sleeping patterns, which different wearable technology trackers can also sense. We can never deny the importance of proper sleep for weight management in people. The other important factor is calorie intake which is the decisive factor for weight management. If there is more calorie intake in the body and fewer calories burned according to the body's needs, it will be responsible for the increased weight of the human body(Andrianopoulou, 2019). So, when trackers are used to track calories burnt in the body according to body weight, age and height, it will be helpful for proper weight management by managing calories in the body. The other important factor is the body's hydration level, which can also be managed by wearable devices for weight management(Li, 2023; Rui, 2024).

### **1.1 Research Objective**

The main objective of this research is to describe wearable Technology and its application in everyday human life. This overview also enumerated various wearable devices related to weight management. The research study determined that wearable fitness technology is related to the effectiveness of

weight management. The research paper is divided into five specific chapters. The first portion represents the introduction and includes the objective of the research. The second section describe that literature review the third section represent those methods of research. The fourth portion describes the results, and its description also the last section summarizes the overall research study and presents some recommendations about weight management and wearable fitness technology.

## 2. Literature Review

Studies demonstrated that habiliment innovations as an actual work intercession accomplished a diminish & huge impact dimension on corpse fat & midriff outline & enormous & tremendous impact measurements upon weight list. A subset examination affirmed that habiliment advances were greater proficient for anti-obesity in people with stoutness & constant infections(Yen & Chiu, 2019). Studies expected to survey the writing involving habiliment innovation toward extended haul fat burning in fleshy & corpulent grown-ups efficiently. This survey displayed proof that habiliment gadgets may work on extended haul actual work & fat reduction results. However, there was insufficient proof to demonstrate an advantage beyond the dial gauge techniques. A significant problem is the contest of isolating the impact of diminishing utilization of habiliment gadgets across the long run out of the impact of the habiliment gadgets upon results(Fawcett et al., 2020). The study assesses the viability of habiliment gadget mediations to work on actual work results in populaces with cardio-metabolic constant infection. The results of this study indicate that habiliment gadgets emphatically influence actual wellbeing in medical populaces along cardio-metabolic sicknesses.

Prospective examination utilizing the latest innovations will intensify these discoveries(Kirk et al., 2019). Studies meant to audit the adequacy of habiliment hunters towards working on active work & fat decrease amid solid grown-ups methodically. The information of this study recommends that the utilization of habiliment hunters in sound grown-ups might be related to humble transient expansions in active work. Moreover, information is expected to decide whether a supported advantage relates to habiliment hunter use(Tang et al., 2020). This research seeks to comprehend whwhetherhabiliment activity innovation is related ttopanded practice amoamongcollege learners. Habiliment activity innovation can improve hypothesis founded actual work advancement to assist learners with expanding activity & abatement dangers of stoutness & ongoing sickness(McFadden & Li, 2019; Sun et al., 2023). This efficient survey aimed to distinguish proof relating to the viability of versatile uses & habiliment gadgets for fat reduction in obese grown-ups. In spite of the fact that research configuration matters, for example, the absence of Non-mediation dial gauge gatherings, forestall an authoritative end in regards to the general force of versatile applications & habiliments beyond different identity-checking

techniques, proof shows that portable innovation may be utilized as fundamental devices inside general fat reduction procedures suggested in the essential consideration context(Wang et al., 2020). The outcomes accentuate the huge constructive outcome of nutritionist inclusion on clients' aims to keep utilizing their habiliment aptness stalker. Nutritionist inclusion further develops proceeded with utilize aim, yet also understands the impact of the decision. The constructive outcome of nutritionist contribution is strong, paying little mind to client fulfilment along the medical care administration framework. Person-viability in the well-being of the executives also assumes a vital part in decidedly directing the impact of decisions on proceeding with utilize expectation(Windasari et al., 2021). This efficient survey of methodical audits & postmodern examinations is planned to study the viability of movement chasers for working on active work & associated physiological & mental results in detached & non-detached populaces. Action chasers have all the earmarks of being compelling at expanding actual work in an assortment of old enough gatherings & detached & non-detached populaces. The advantage is medically significant & is supported beyond the long haul. In light of the examinations assessed, there's adequate proof to suggest the utilization of action chasers(Ferguson et al., 2022). Studies determined that habiliment wellbeing innovation came to be proposed, such as wellbeing mediation in forestalling or diminishing wellbeing, which are dangerous elements in detached populaces.

Subsequently, this survey approves the utilization of habiliment wellbeing innovation to further develop diminish-to-robust physical activity & conceivably stage include in disease castaways whilst it seems habiliment wellbeing innovations insignificant affect fat & possibly have a contrary impact on stationary period(Blount et al., 2022). Studies expect to assess the impacts of habiliment gadgets in adhesion & different well-being results towards individuals along ongoing impeding aspiratory sickness, glucose dysregulation disorder, & coronary infection. The outcomes of this survey displayed deficient proof to help the utilization of habiliment gadgets toward ongoing impeding aspiratory sickness to upgrade e-health results for infection the board(Kamei et al., 2022). Scholars demonstrate that the need-founded circulation procedure executes somewhat best compared to the other procedures & has a better relationship toward the abstract perceived value whenever contrast faces different. Given the outcomes, suitable proposals are given to the other shrewd habiliment merchants for working on their items, guaranteeing more noteworthy client reception(Pal et al., 2019). The study results show that client habiliment activity chasers-founded mediations increment active work & valuably affect significant wellbeing-associated results, for example, diastolic circulatory strain, midriff boundary & low-density lipoprotein saturated fat focus in sufferers with persistent sicknesses(Duan et al., 2023; Franssen et al., 2020). Researchers expected to survey the capacity of habiliment innovation to screen the nourishing admission of grown-up members. This research records elevated fluctuation in the exactness & usefulness of a watchstrap detector to follow



healthful admission, featuring the requirement for dependable, powerful estimation devices to work with precise, accuracy-founded innovations for individual dietetic direction & mediation(Dimitratos et al., 2020). This research aimed to analyze the viability of habiliment innovation towards further developing corpse structure & PA and, & furthermore, to investigate the relationship with person-decided inspiration. This exploration proves that habiliment innovation might not be successful in further developing extended-haul active work adherence. Moreover, it proposes that internalized inspiration might be a significant component of such a connection(Steel, 2024). This developmental review is expected to evaluate the insights, requirements, & difficulties of execution of an automated well-being chronicle- incorporated isolated sufferer controlling scheme utilizing habiliment gadgets to advance sufferer physical activity at a huge metropolitan essential consideration exercise to plan for prospective intercession. Execution of an automated well-being chronicle-founded isolated sufferer controlling scheme & related work process is satisfactory to fundamental care purveyors & sufferers, yet they will expect thoughtfulness regarding supplier worries of included difficult sufferer information & sufferer worries of getting custom-made physical activity direction (Ayyaswami et al., 2024). Studies plan to recognize & sum up ongoing investigations that have involved habiliments & cyber-physical systems advancements & talk about their appropriateness for wellness appraisal. Outcomes have revealed that habiliment & cyber-physical systems advances came to be utilized in athletics for wellness evaluation as well as for observing the competitor's inward & outside jobs, utilizing physiologic station checking & action acknowledgment & following strategies(Passos et al., 2021). This study aims to gauge the effect of various portable application highlights on fat reduction & versatile application adherence. Cell phone applications play a part in fat reduction for executives.

However, the mortal-founded social part remained vital to elevated fat reduction outcomes (Antoun et al., 2022). Despite study constraints, the consequences of the writing survey recommend that habiliment innovations may be an important device for competitors & mentors who are hoping to further develop execution. Eventually, this mechanical advancement in athletics scientific discipline will probably decisively impact the best in class in sport checking & athletics examination(Migliaccio et al., 2024). Researchers reveal that habiliment innovations provide a novel arrangement as they give continuous psycho-physiological that might further develop adherence to & maintainability of way of life intercessions. Accessible proof recommends that habiliment gadgets have a few uses besides movement following, which might change wellbeing behaviourng over continuous psycho-physiological. Generally, such gadgets seem, by all accounts, to become protected & possible to be utilized in different contexts in the obstetric epoch gathering to forestall & process heftiness (Chimatapu et al., 2024). Studies intended to comprehend the ease-of-use components that have the majority impact on whether a more

established grown-up will choose to keep utilizing a habiliment gadget. This research presumes that solace & exactness are the two primary affecting elements in supporting habiliment gadget utilize. Studies also recommend that the announced elements affecting ease of use are adaptable to different habiliment detector frameworks (Muñoz Esquivel et al., 2023). Scholars expected to assess whether utilizing habiliment gadgets, expanded actual work & decreased stationary conduct in grown-ups. Studies and discoveries propose that the utilization of habiliment gadgets might increase active work in moderately elderly grown-ups. Prospective examinations are expected to explore the impacts of utilizing habiliment gadgets on unambiguous subsets in various subsequent extents, & the job of different mediation parts (Longhini et al., 2024). This exploration is a certain primary to inspect the connection among the apparent client worth of wrist-mounted habiliment gadgets & their real use inside a machine-sorted & intuitive climate.

The outcomes are supposed to present hypothetical bits of knowledge toward how good clients acknowledge the well-being & wellness parts of wrist-mounted habiliment gadgets. Essentially, it'll construct consciousness of whatever compels clients to embrace & utilize wrist-mounted habiliment gadgets, assisting specialists with planning the best well-being advancements & missions related to wrist-mounted habiliment gadgets (Hahm et al., 2023). Studies assess the viability of the mediation amid obese ladies in expanding person-adequacy & accomplishing a sound burden, subsequently affecting the entire lineage's solid way of life & extended haul well-being. The drawn-out purpose is to add to ladies' well-being by assisting the executives in conducting change by means of mediation led in gestation facilities (Saarikko et al., 2023). The goal of this research was to acquire experiences toward the sufferers' viewpoints on the effect of malignant growth cachexy on actual work & their readiness to fatigue advanced well-being innovation gadgets in detached preliminaries. Ultimately, this research populace discovered the intended fatigue of advanced well-being innovation gadgets upon carpus & near the midsection reasonably, however long detached examinations might last (Tarachandani et al., 2023). Scholar studies reveal that habiliment innovation utilize in associations is advancing quickly regardless of moral worries around private protection, information protection, & pressure from expanded observation. Researchers impart by broadening past work on reconnaissance innovation to demonstrate in what way & wherefore habiliment technology press talks utilize free marketeer avocations to legitimize habiliment innovation execution (Plester et al., 2024).

### **3. Methods**

The research study describes the impact of wearable fitness technology on weight management. The research is based on primary data analysis, using SPSS software to determine the data. The results generated included

descriptive statistics, correlation, and chi-square, which explain the graphical analysis between them (Figure 1).



**Figure 1:** Wearable Fitness Technology

1. The prevalence of obesity among people is increasing every day. A lot of people around the world are obese due to poor or bad eating habits. Many medical problems arise due to obesity. Obese people are at higher risk of developing serious health complications than healthy people. There are a lot of factors that cause obesity in people. Genetic factors are one of the prominent factors that result in obesity. Other factors include lifestyle and environmental factors. To overcome the problems associated with obesity, people are trying different methods and techniques. A lot of people indulge in physical activity to lose weight and to save themselves from obesity-related problems. Reducing the intake of calories helps people to lose weight.

2. The modern age of technology has increased the use of innovative techniques for improving health conditions. Modern trackers have been developed and are capable of determining the weight of a person and also his physical activity level. The trend of using wearable technology to track physical health is increasing rapidly. Wearable sensor trackers are made to detect a person's physical health status. Wearable trackers are specially developed using sensors to sense a person's body movement and health conditions. By tracking health-related variables, these wearable gadgets provide detailed information regarding a person's energy expenditure in daily life.

3. Most obese people prefer to adopt physical activity training-based interventions to lose weight. By indulging in active exercises, the physical health of obese people improves. The traditional physical intervention methods have



been replaced with the technology-based methods. Nowadays, the trainers provide exercise-based training to obese people at home using modern technology-based systems. The majority of obese people prefer to use wearable trackers to keep themselves updated about their physical health condition. Wearable devices like sports watches and other technology bracelets are a great source for collecting data regarding physical health. By gaining information about their health condition through wearable trackers, people get motivated to track their calories and maintain a healthy lifestyle.

4. There are different types of wearable trackers available in the market. Each tracker provides detailed information about the person's health and about is calorie intake. The fitness trackers are specifically built to track a person's fitness-related variables. The activity trackers are developed to determine the physical activity level a person undergoes daily. The major quality of all wearable devices is that they are eco-friendly and budget-friendly. The setting option in wearable trackers makes people more goal-oriented in their real lives. The quality of goal-setting people to achieve their desired goal is enhanced through goal-setting trackers.

5. Some wearable trackers are so effective that they determine the level of blood pressure of a person as well as his heart rate. People doing aerobics exercises use these wearable sensors to track their heartbeat levels during exercise. The behavioural deactivation sensors are built to determine the changes in the behaviour of a person as a result of indulging in physical exercise. Information about the psychological outcomes of people doing physical exercise is determined through wearable technology systems. The data obtained from a wearable tracker of depressed patients reveal that exercise reduces depression levels in people. People who actively indulge in physical exercises are less likely to get depressed and anxious. Physical activity plays the role of antidepressants for people indulging themselves in actively engaging activities.

6. People who are physically more active are less prone to serious medical problems than people who are physically less active. Studies on people who actively participate in aerobic exercises reveal that these people are more fit than non-participating people. Obesity brings many problems with it that result in serious medical complexities. The early intervention strategy to cope with early-stage obesity is physical exercise. Making people aware of the importance of exercise can help make them physically fit and active. For this purpose, fitness-related intervention programs are made by health organizations to provide timely health interventions to people.

7. Health institutes around the world are working to make the use of wearable tracking systems more common among the general public. People

are provided with knowledge about the use of smart wearable watches to make them aware of their use. By properly using wearable sensors, people can track their health variables. For example, if a person intake more calories than his normal range of intake, then the wearable sensor warns him about it by giving him notifications. In the same way, if a person remains physically inactive all day, then seniors show signs of no energy expenditure for today. These little bits of information together help the person in tracking every factor that influences his physical health.

8. Many health studies reveal that a person's physical and mental health is related. If a person is physically tired and inactive, then his mind feels restless. To improve their psychological health, people do exercises like yoga and meditation. These exercises improve their physical health and clear their minds of thoughts. To track the body posture and movement during yoga, people wear wearable trackers. These trackers provide data about the right body posture for performing medication and yoga exercises. Also, these trackers use sensor-based algorithms to track the impact of meditation exercises on a person's psychological health. Many wearable technology-based trackers are built using AI. The AI feature of the wearable sensors makes their work more efficient and reliable.

**Table 1:** Result of Descriptive Statistics

<b>DESCRIPTIVE STATISTICS</b>					
	<b>N</b>	<b>MINIMUM</b>	<b>MAXIMUM</b>	<b>MEAN</b>	<b>STD. DEVIATION</b>
<b>WEARABLE FITNESS TECHNOLOGY 1</b>	60	1.00	3.00	1.3667	.63691
<b>WEARABLE FITNESS TECHNOLOGY 2</b>	60	1.00	3.00	1.6667	.70511
<b>EFFECTIVENESS 1</b>	60	1.00	3.00	1.5000	.56748
<b>EFFECTIVENESS 2</b>	60	1.00	3.00	1.5000	.56748
<b>WEIGHT MANAGEMENT</b>	60	1.00	3.00	1.5333	.59565
<b>VALID N (LISTWISE)</b>	60				

The outcome shown in table 1 shows that each variable's mean values, minimum rate, maximum value, and standard deviation rate are all described by descriptive statistical analysis. The primary independent variable, Wearable Fitness Technology 1, has a mean value of 1.3667 and a standard deviation rate of 63%, indicating a variation from the mean regarding the impact of wearable technology on weight management. Another indicator result that deviates from mean values is wearable technology 2, which has a mean value of 1.5000 and a standard deviation rate of 56%. The total result indicates that

there are 60 observation levels, a minimum value of 1.00, a maximum value of 3.00, and so on.

The results show that the efficacy 1 and 2 components, which are regarded as mediator variables, have a mean value of 1.5000 and a standard deviation rate of 56%, which indicates a variation from the mean. The main dependent variable is weight control. According to the results, the mean value is 1.5333, and the standard deviation rate deviates from the mean by 59%.

**Table 2:** Result of Model Summary

<b>MODEL SUMMARY</b>				
<b>MODEL</b>	<b>R</b>	<b>R SQUARE</b>	<b>ADJUSTED SQUARE</b>	<b>R STD. ERROR OF THE ESTIMATE</b>
1	.373 <sup>a</sup>	.139	.077	.57233

a. Predictors: (Constant), Effectiveness 2, Wearable Fitness Technology 2, Wearable Fitness Technology 1, Effectiveness 1

The above results shown in table 2 describe that the model summary results represent R values, R square values, and the adjusted R square value, as well as the R standard error of the estimated values of the linear regression model between them. The overall R rate is 37%, the R square rate is 13%, and the adjusted R square rate is 7%, and the estimated value is 57%, respectively.

**Table 3:** Result of ANOVA

<b>ANOVA</b>						
<b>MODEL</b>		<b>SUM OF SQUARES</b>	<b>DF</b>	<b>MEAN SQUARE</b>	<b>F</b>	<b>SIG.</b>
1	Regression	2.917	4	.729	2.226	.078 <sup>b</sup>
	Residual	18.016	55	.328		
	Total	20.933	59			

a. Dependent Variable: Weight Management

b. Predictors: (Constant), Effectiveness 2, Wearable Fitness Technology 2, Wearable Fitness Technology 1, Effectiveness 1

The result shown in table 3 demonstrates that linear regression analysis result describes the sum of square values, the mean square values, and the F statistic, and the significant rate of each model included regression and residual model. The regression model represents that its sum of square value is 2.917, the mean square value is 72%, and the significant rate is 7%, respectively, showing a 7% significant level between them. The residual model describes that the sum of the square rate is 18.016, and the mean square value is 32%, respectively. The total value relates to the sum of squares; its value is 20.933 respectively.

**Table 4:** Result of Coefficients

<b>COEFFICIENTS</b>						
<b>MODEL</b>		<b>UNSTANDARDIZED COEFFICIENTS</b>		<b>STANDARDIZED COEFFICIENTS</b>	<b>T</b>	<b>SIG.</b>
		<b>B</b>	<b>STD. ERROR</b>	<b>BETA</b>		
<b>1</b>	(Constant)	.627	.418		1.499	.140
	Wearable Fitness Technology 1	-.096	.118	-.103	-.820	.416
	Wearable Fitness Technology 2	-.053	.109	-.063	-.487	.628
	Effectiveness 1	.428	.154	.407	2.783	.007
	Effectiveness 2	.324	.153	.308	2.121	.038

a. Dependent Variable: Weight Management

The result shown in table 4 demonstrates that unstandardized coefficient, the standardized coefficients result describes that beta values, standard error, the t statistic value also that significant values of each independent variable. wearable technology 1 is the main independent variable result describes that the beta value is -0.096, the t statistic rate is -0.820, and its significant level is 0.416, showing that it is negative but is 41% significant level between them. wearable technology 2 is another independent variable result describing that the t statistic value is -0.487, and the significant level is 0.628, showing that it is negative but has a 62% significant relation with weight management. Effectiveness 1 and 2 both are mediator variable results describe that its T statistic value is 2.783 and 2.121, and the significant rate is 0.007 and 0.038, showing a positive and 7% and a 3% significant relation with weight management. The beta rate related to the standard coefficient is 0.407 and 0.308, respectively, showing 40% and 30% positive beta values between them.

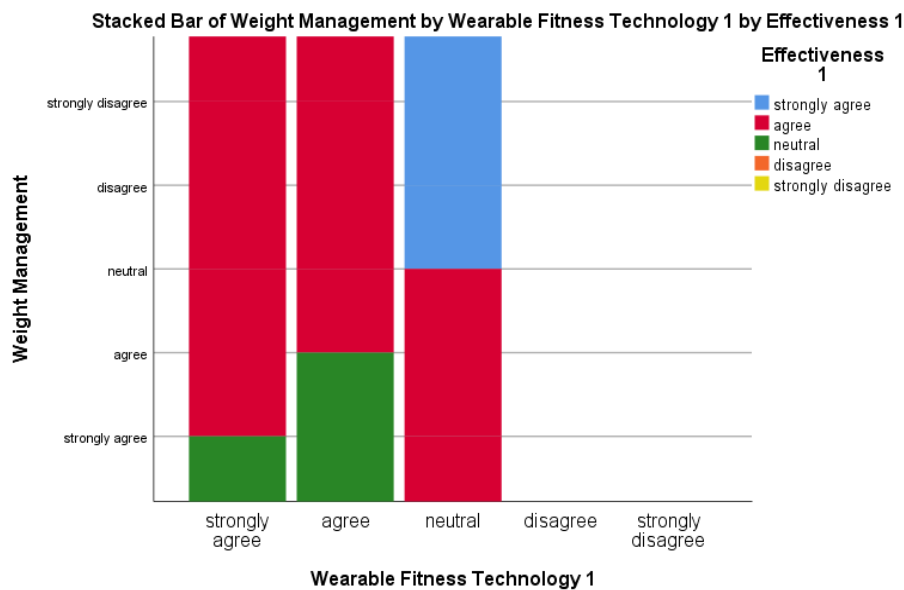
**Table 5:** Result of Test Statistics

<b>TEST STATISTICS</b>					
	<b>WEARABLE FITNESS TECHNOLOGY 1</b>	<b>WEARABLE FITNESS TECHNOLOGY 2</b>	<b>EFFECTIVENES S 1</b>	<b>EFFECTIVENES S 2</b>	<b>WEIGHT MANAGEMENT</b>
<b>CHI-SQUARE</b>	40.900 <sup>a</sup>	11.200 <sup>a</sup>	25.200 <sup>a</sup>	25.200 <sup>a</sup>	22.300 <sup>a</sup>
<b>DF</b>	2	2	2	2	2
<b>ASYMP. SIG.</b>	.000	.004	.000	.000	.000

a. 0 Cells (0.0%) Have Expected Frequencies Less Than 5. The Minimum Expected Cell Frequency Is 20.0.

The above result shown in table 5 describes that chi-square analysis result describes that chi-square values of each variable, including dependent and independent variables. The chi-square rate of wearable fitness technology 1,2 is 40.900, and 11.200 shows positive chi-square rates. The effectiveness 1 and 2 mediator variables chi-square value are 25.200, and the weight management shows a 22.300 chi-square rate between them. the overall result shows a significant value is 0.000, showing a 100% significant rate between them.

#### 4. Histogram Analysis



**Figure 2:** Weight management by wearable fitness technology

The above graph shown in figure 2 presents weight management by wearable fitness technology. The vertical side shows weight management; it shows a strongly agreed-upon, agreeable, neutral level and a strongly disagreed-upon level. The horizontal side presents the same range, and the above bar line shows a link between them.

#### 5. Conclusion

There was insufficient evidence in this evaluation to demonstrate an advantage over the comparator approaches. However, there was some indication that wearable devices can enhance long-term physical activity and weight reduction results. The difficulty of distinguishing between the impact of wearables on the results and the effect of gradual reduction in wearable device use is a significant problem. Long-term research on the use of wearable gadgets for weight reduction in the future must adhere to consistent study methodology. A lot of obese people face health problems like eating disorders. The people facing eating disorders problems eat too much and are overweight



and if eat too little and are underweight both these conditions make a person's physical health badly disturbed. To provide health intervention to such people they are guided to use tracker's wearable systems. the use of these systems helps them to track the amount of daily calorie intake. Such check and balance-based technology for calorie intake improves the eating disorder-related complex problems in obese people. Moreover, many health organizations and institutes are making efforts to make the use of wearable technology popular among the public to effectively control the growing obese population all over the world. The effectiveness shown by wearable technology for weight management makes it the most suitable technology with zero ethical concerns.

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